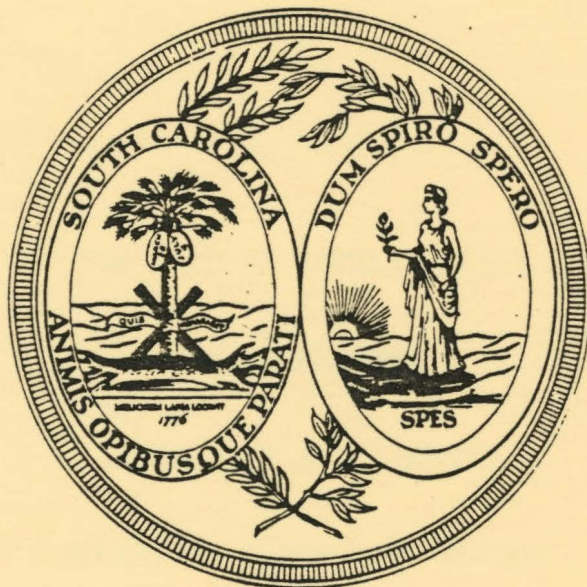


A3Au255
8.P64

South Carolina General Assembly



Legislative Audit Council



South Carolina General Assembly
Legislative Audit Council
Program and Operational Review
of the Printing, Duplicating
and Photocopying Activities of
South Carolina State Agencies
November 14, 1978

THE STATE OF SOUTH CAROLINA

GENERAL ASSEMBLY

LEGISLATIVE AUDIT COUNCIL

PROGRAM AND OPERATIONAL REVIEW

OF THE

PRINTING, DUPLICATING AND PHOTOCOPYING

ACTIVITIES OF SOUTH CAROLINA

STATE AGENCIES

TABLE OF CONTENTS

	<u>Page</u>
REPORT SUMMARY	1
<u>CHAPTER I</u> - INTRODUCTION	5
<u>CHAPTER II</u> - IN-HOUSE PRINT SHOPS	11
<u>CHAPTER III</u> - QUICK COPY CENTERS	33
<u>CHAPTER IV</u> - PHOTOCOPYING	39
<u>CHAPTER V</u> - CONTRACTUAL PRINTING	45
<u>CHAPTER VI</u> - BUDGET CODES	55
<u>CHAPTER VII</u> - ANALYSIS OF PRINTING OPERATIONS IN OTHER STATES	59
<u>CHAPTER VIII</u> - PROPOSAL FOR CONSOLIDATING AGENCY PRINT SHOPS	67
<u>APPENDICES</u>	
<u>APPENDIX I</u> - PROPOSED LEGISLATION	79
<u>APPENDIX II</u> - AGENCY, COLLEGE AND UNIVERSITY PRINTING EQUIPMENT INVENTORY SUMMARY	81
<u>APPENDIX III</u> - METHODOLOGY FOR DETERMINING UTILIZATION OF OFFSET PRESSES IN SOUTH CAROLINA STATE GOVERNMENT	84
<u>APPENDIX IV</u> - METHODOLOGY FOR COST COMPARISON OF THE XEROX 9200 SYSTEM WITH AUTOMATED OFFSET SYSTEMS	88
<u>APPENDIX V</u> - ANNOTATED BIBLIOGRAPHY	90
<u>APPENDIX VI</u> - AGENCY COMMENTS	92

REPORT SUMMARY

At the request of the General Assembly, the Legislative Audit Council reviewed the management and operation of South Carolina's printing, duplicating and photocopying activities. State agencies printing operations (excluding colleges and universities) are carried out in 26 autonomous agency print shops. Twenty-five of these shops are located in Columbia and one at Whitten Village in Clinton, South Carolina.

Operations of government print shops in other states and commercial print shops in the Columbia area were examined. Where available, commercial standards were used for comparisons with State agency practices. In other cases standards utilized by other states or developed by the Audit Council were used. In all cases, accepted management practices and procedures designed to ensure the most efficient possible use of public funds were the basis for evaluation.

After examination of printing operations in South Carolina and comparisons with other states and commercial print shops the Audit Council concluded that the existing system could be improved. Three alternatives were available:

- (1) Improving the efficiency of existing autonomous shops;
- (2) Having all or most of the printing done by commercial shops; or
- (3) Developing a consolidated print shop using the equipment and personnel already available.

Of the three alternatives considered, analysis indicated that the highest levels of increased efficiency and coordination as well as better management would result from consolidation of agency print shops. Specific areas where improvements can be made are:

- (1) Equipment utilization - At present the 69 printing presses in State agencies are used an average of 21.1% of the 1,642.5 productive hours available for each machine annually or an average of about 1½ to 2 hours per day. Support or peripheral equipment is used even less. (p. 13)
- (2) Personnel utilization - State agencies now have 88 classified positions and 10 part-time employees involved in the printing function. It is estimated that only 60 full-time printing employees would be needed to produce the same volume of work in a consolidated State Government Print Shop with several satellite quick copy centers. (p. 18)
- (3) Maintenance costs - Eighteen agencies use expensive maintenance contracts rather than performing the work themselves. (p. 22)
- (4) Supplies - Paper and other printing supplies are not purchased in the most economical manner. Inadequate inventory control systems, the lack of management supervision, and the inefficiency of small print shops allows for obsolete, damaged or unusable stock in the inventory and increases waste. (p. 24)
- (5) Space utilization - Agencies currently use more space for the printing function than would be necessary with a consolidated shop. In addition, most agencies are using office space rather than more economical warehouse-type space as used by commercial print shops. It is estimated that the floor space used in producing the State's in-house printing could be reduced from 34,706 to 25,000 square feet. The average cost of \$4.32 per square foot could be reduced to under \$2.75 per square foot for warehouse space. (p. 25)

- (6) Record-keeping - Of the 26 agencies examined only six kept adequate records of the copies printed and used this information for making management decisions concerning printing. No agencies kept any records regarding the productivity of personnel, individual presses, or peripheral equipment. (p. 28)

In addition, the Council found that improvements could be made in the use of quick copy centers, photocopying and contractual commercial printing.

- (7) Quick Copy Centers - Several agencies are meeting their quick turnaround copying/duplicating needs through the use of very high speed photocopying systems with sorters and collators when less expensive but comparable automated offset systems would be adequate. The Council analyzed billings for 10 machines in 8 agencies and found only two machines economically justified. (p. 33)
- (8) Photocopying - Control over copiers and their efficient use has not been adequately developed. There is no one agency, office or individual in the State that knows what the State is actually spending in this area. Competitive term contracts are not currently established for copiers. (p. 39)
- (9) Contractual (Commercial) Printing - Many agencies are ordering letterhead, envelopes, and business cards frequently in small quantities resulting in higher prices and unnecessary administrative paperwork. Agencies regularly use higher priced special types and grades of paper for letterhead, business cards and envelopes instead of standard, high quality paper (State Seal bond for letterhead and #88 white vellum card stock for business cards).

Also these items are being printed in two or three colors and/or engraved which results in increased costs. (p. 42)

Based on its evaluation of State printing, duplicating and photocopying, the Legislative Audit Council concluded that implementation of a consolidated system could result in recurring annual savings of \$680,326 per year. The report which follows addresses the Council's findings and recommendations in detail.

POTENTIAL COST SAVINGS

<u>Item</u>	<u>Net Recurring Annual Savings</u>
Reduce the purchase of new equipment.	\$ 70,250
Discontinue maintenance contracts and maintain equipment with existing personnel.	18,000
Use cost-effective automated offset systems in satellite quick copy centers.	51,805
Staff reduction from 88 full-time positions and 10 part-time employees to 60 full-time printing employees.	385,316
Convert 34,706 square feet of office space costing approximately \$135,203 and establish a 25,000 square foot printing facility costing \$2.75/sq. ft. or less.	66,453
Reduce obsolete and damaged stock and production scrap by at least 5% through better supervision and control.	30,000
Standardization of letterhead using one color ink on State Seal bond paper printed by State facilities.	30,502
Bulk purchasing of standard items (envelopes) and the elimination of unnecessary printing.	<u>28,000</u>
TOTAL RECURRING ANNUAL SAVINGS	<u><u>\$680,326</u></u>

CHAPTER I
INTRODUCTION

Scope and Purpose

At the request of the General Assembly the Legislative Audit Council conducted a statewide review of the State's printing, duplicating and photocopying. All aspects of production were evaluated in order to determine the most economical and practical way for the State to provide the printing services required by agencies. Special emphasis was placed on examining and evaluating agency print shops in the Columbia area. Methods of providing cost savings through better utilization of equipment and personnel without sacrificing the quality of the material printed were closely studied.

Wherever possible, agency production was analyzed against commercial standards to determine the efficiency and effectiveness of agency print shops. In some cases direct comparison was not possible because commercial shops produce more complex printing using more sophisticated techniques and equipment. In these cases the Council developed production standards based on fixed data (e.g., the length of the work day) and accepted management practices (see Appendix III).

A preliminary survey was made to obtain an initial information base. One hundred and six (106) agencies, colleges and universities completed the Council's questionnaire regarding the type and amount of printing, duplicating and photocopying produced by or for each agency. The Council staff made a detailed review of each of the 26 agency print shops in the Columbia area including the Department

of Mental Retardation's print shop located at Whitten Village in Clinton, South Carolina.

At each of these agencies, Council staff took an equipment and personnel inventory, reviewed any available records and interviewed print shop managers, supervisors and other printing employees. Print shop policies and procedures were evaluated. Print shop production was determined where records were available. The Council compiled the first complete and detailed inventory list of all printing and related equipment owned by all State agencies, colleges and universities (see Summary, Appendix II). This equipment inventory was furnished to the Division of General Services' Printing Office.

The Council examined the functions of the Division of General Services' Printing Office regarding printing which is put out on commercial bids. The role of the State Printing Office in assisting agency print shops and approving the purchase of printing equipment was also reviewed.

For additional information, the Council received survey responses from 19 states. Detailed interviews were held with North Carolina, Georgia, Alabama, Michigan, and Delaware, all of which had successfully reorganized agency print shops and formed one or more centrally coordinated print shops. Council staff visited North Carolina and reviewed that state's printing facilities and operational organization. Finally, visits were made to local commercial print shops and interviews held with several of the vendors providing printing equipment to the State.

Background

South Carolina State Government's printing/duplicating and photocopying requirements have grown substantially over the last several years as State programs, budgets, and services have increased. In FY 77-78 the State spent approximately \$12.9 million for commercial printing, agency run (in-house) print shops, and photocopying.

PRINTING/DUPLICATING AND PHOTOCOPYING

EXPENDITURES IN FY 77-78

Commercial Printing

- 5,228 contracts awarded	\$ 4,957,948
- Legislative and Departmental Printing	810,000

In-house Print Shops

- State Agencies	1,820,000
- Colleges and Universities	1,608,000

Photocopying	<u>3,700,000</u>
--------------	------------------

TOTAL	\$12,895,948
-------	--------------

There are 26 agency and 9 college and university production print shops in the State. Twenty-five of the agency print shops are located in the Columbia area and one at Whitten Village in Clinton, South Carolina.

Agency print shops are generally limited to production of simple items such as forms. Forms make up 80% to 90% of all agency printing. They are usually printed in only one color and require very little work other than the printing itself.

The Educational Television Commission (ETV) does the most sophisticated printing of any State agency. The majority of its work consists of books, brochures, pamphlets, and teaching aids for the educational television system. College and university print shops also produce brochures, books, and other publications as well as standard forms. These items are often printed in two or more colors and require more preparation and bindery work. Most of these print shops, in addition to larger presses and sophisticated bindery equipment, also have complex typesetting equipment for the production of newspapers and books.

The print shop operated by the General Services Division is the only print shop that serves other State agencies. This facility serves approximately 65 small agencies, boards and commissions.

The General Assembly has placed the authority over the State's printing with the Budget and Control Board. Section 11-25-10 of the 1976 Code of Laws provides that: "The State Budget and Control Board shall have control and supervision of all the public printing, binding, lithographing and engraving for the State or any department of the State Government." Additionally Sections 11-25-20 and 11-25-30 of the 1976 Code of Laws gives the Board the authority to prevent unnecessary printing, binding, lithographing, or engraving and to approve all printing pertaining to legislative and State matters. The Budget and Control Board also has control over the acquisition of printing equipment. Section 11-25-410 of the 1976 Code of Laws specifies that: "No department of the government of this State shall make any purchase of any equipment, machinery or apparatus for the production or reproduction of printing, lithographing, or engraving without first having secured the approval in writing of the State Budget and Control Board."

The General Services Division's (GSD) State Printing Office is responsible for printing which goes to commercial vendors. This office places agency printing jobs on competitive bids and awards the contracts. It also receives agency requests for printing equipment purchases and makes a recommendation to the Board on either approving or disapproving the purchase of any equipment by agencies, colleges and universities.

Report Format

This report examines each of the major factors in State printing and photocopying activities. Chapter II deals with agency-run (in-house) print shops. Areas examined include equipment utilization, personnel, maintenance, supplies, floor space use and record-keeping.

Chapter III is an analysis of short run duplicating requirements, types of equipment used, and the "quick copy center" concept for meeting these needs. Chapter IV addresses standard photocopying.

Chapter V concerns contractual purchase of printing services from commercial print shops and Chapter VI deals with budget codes used for printing and photocopying operations. Chapter VII analyzes printing operations in other states and includes an examination of consolidated systems, the benefits that have resulted from these systems and the problems encountered in setting them up. Finally, Chapter VIII contains the Legislative Audit Council's recommendations for consolidating agency print shops.

CHAPTER II
IN-HOUSE PRINT SHOPS

INTRODUCTION

The Council found that the existence of 26 autonomous State agency print shops results in inefficiency and additional cost in all major aspects of in-house agency printing; utilization of equipment, utilization of personnel, maintenance contracts, purchasing of supplies, utilization of floor space and record-keeping. (Each of these areas will be discussed in detail in succeeding sections of this chapter.)

Since combined expenditures in these areas constitute the cost of printing, overall differences in efficiency can be demonstrated by comparing the cost of production among agencies. The difference in the cost of producing 1,000 impressions* varies from about \$5 per 1,000 impressions for two agencies to over \$15 per 1,000 impressions for ten agencies. The Department of Mental Retardation spends \$63.16 per 1,000 impressions and the Disaster Preparedness Agency \$277.71 per 1,000 impressions. The following table lists each agency in the Columbia area with a production print shop, their annual volume, annual cost and the cost per 1,000 impressions.

* An impression is one printed copy.

TABLE I
COST OF PRINTING PER 1,000 IMPRESSIONS^(a)

<u>Agency</u>	<u>Annual Production (Impressions)</u>	<u>Annual Cost</u>	<u>Cost Per 1,000 Impressions</u>
Aeronautics Commission	234,000	\$ 2,303	\$ 9.84 ^(c)
Dept. of Agriculture	1,366,728	23,085	16.90
Criminal Justice Academy	960,000	26,680	27.79 ^(c)
Disaster Preparedness Agency	49,440	13,730	277.71
Department of Corrections	3,889,884	23,653	6.08 ^(c)
Department of Education	1,572,000	33,633	21.40
Educational Television Comm.	13,044,264	166,800	12.78
Employment Security Comm.	16,825,176	102,089	6.06
Forestry Commission	540,000	15,048	27.86 ^(c)
Div. of General Services	3,141,612	76,015	24.20
DHEC	5,776,114	64,496	11.16
DHPT	7,257,996	72,945	10.05 ^(c)
Industrial Commission	428,544	5,284	12.34
Judicial Department	2,040,000	10,112	4.95
Labor Department	717,576	15,256	21.27
Dept. of Mental Health	8,036,232	73,085	9.09
Dept. of Mental Retardation	965,520	60,954	63.16 ^(c)
Probation, Pardon & Parole Bd.	2,400,000	32,974	13.73
Public Service Commission	(b)	(b)	(b)
SLED	1,823,736	16,941	9.29 ^(c)
Dept. of Social Services	35,374,380	176,976	5.00
Tax Commission	6,759,000	70,020	10.35
St. Bd. for Tec. & Comp. Ed.	3,327,084	48,295	14.51
Vocational Rehabilitation	1,140,000	16,313	14.31
Water Resources Commission	420,000	9,731	23.17
Dept. of Wildlife & Mar. Res.	1,500,000	42,974	28.64
TOTAL	119,589,286	\$1,199,392	

Cost per 1,000 impressions (all agencies) - \$10.02

(a) Costs include equipment amortization, maintenance costs, personnel costs and floor space costs.

(b) Cost and production data not available due to lack of records.

(c) Floor space costs could not accurately be determined and are not included in cost determination.

Equipment

The 26 agencies with production print shops own 350 pieces of equipment with an investment cost of \$935,973. Included are 69 offset presses which produce an estimated 120 million impressions a year.

(The Department of Youth Services has a non-production print shop used only for teaching with 29 pieces of equipment costing \$46,342.)

To determine the feasibility of a consolidated State Government Print Shop the Council analyzed the extent to which this equipment was utilized. Several methods were used.

First the Council examined utilization as a percentage of the total number of hours available each year for each machine. (Detailed standards and calculations may be found in Appendix III.) Using this standard, the Council found that on the average printing presses were operating only 21.1% of the time. Figure 1 shows the average number of productive hours used per day for each agency print shop.

Second, since no statewide standard for an acceptable utilization level currently exists in State Government, the Council analyzed press utilization using a minimum standard where 4 hours per day and 5,000 impressions per hour was equal to 100% utilization (for detail see Appendix III). Applying this efficiency standard, State agencies' presses are only operating 39.5% of the time. In other words, the total production of the State's 69 printing presses could be done on 30 presses used 4 hours per day. Table II lists the number of presses owned by each agency and the utilization of those presses as a percentage of the standard.

FIGURE 4. AVERAGE NUMBER OF PRODUCTIVE HOURS USED PER DAY

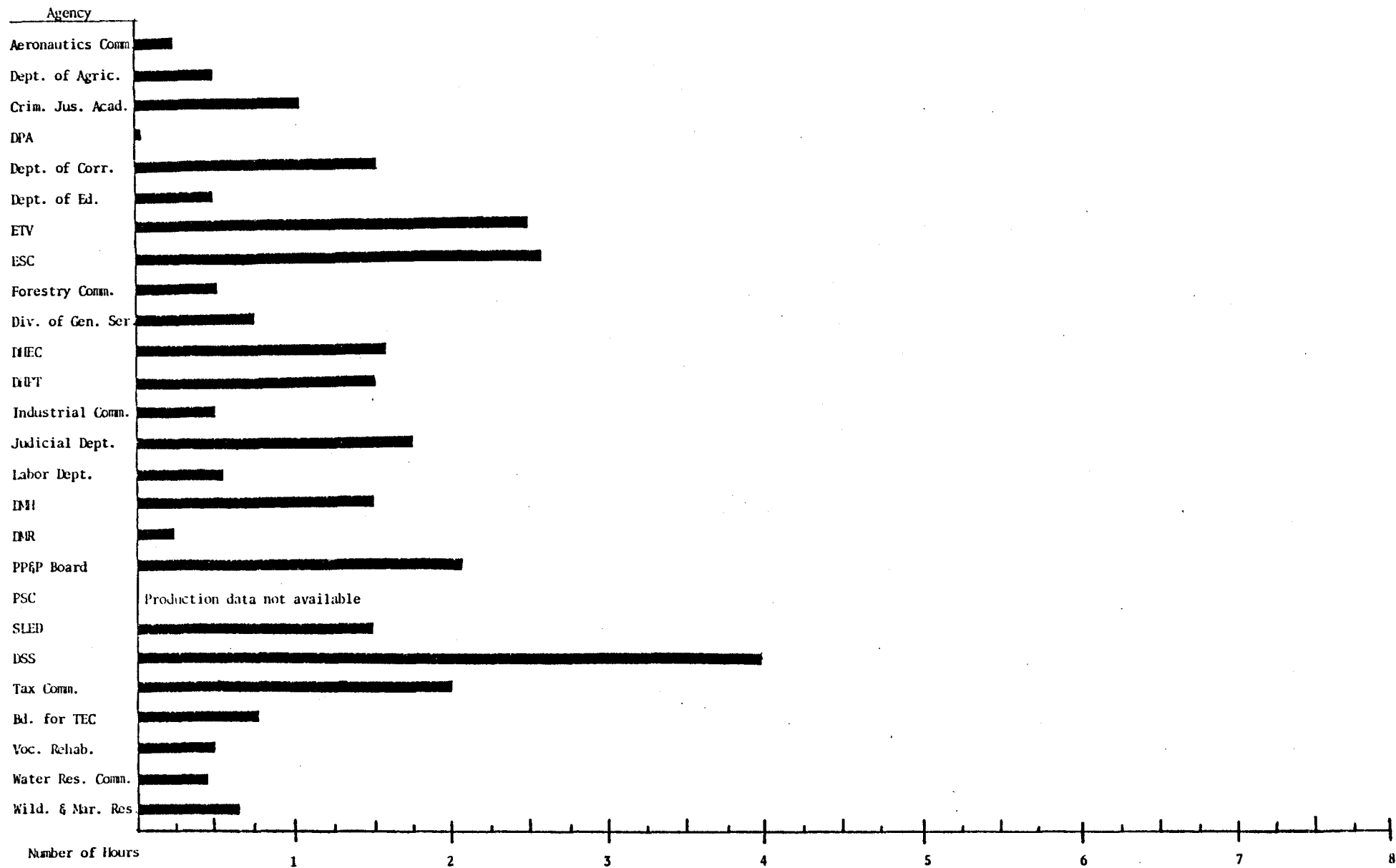


TABLE II
UTILIZATION OF PRINTING PRESSES

<u>Agency</u>	<u>Number of Presses</u>	<u>Utilization*</u>
Aeronautics Commission	1	5.3%
Department of Agriculture	2	15.5%
Department of Corrections	2	44.4%
Criminal Justice Academy	1	21.9%
Disaster Preparedness Agency	1	1.1%
Department of Education	4**	11.9%
Educational Television Commission	5	59.5%
Employment Security Commission	6	64.0%
Forestry Commission	1	12.3%
Division of General Services	4	17.9%
Dept. of Health & Environmental Control	3	43.9%
Dept. of Highways & Public Transport.	4	41.4%
Industrial Commission	1	9.7%
Judicial Department	1	46.5%
Labor Department	1	16.3%
Department of Mental Health	5	36.6%
Department of Mental Retardation	4	5.5%
Probation, Pardon & Parole Board	1	54.7%
Public Service Commission	1	***
State Law Enforcement Division	1	41.6%
Department of Social Services	8	100.0%
Tax Commission	3	51.4%
Bd. for Technical & Comprehensive Ed.	4	18.9%
Vocational Rehabilitation Dept.	2	13.0%
Water Resources Commission	1	9.5%
Wildlife & Marine Resources Dept.	2	17.1%
Average Utilization All Presses		39.5%

* Utilization is the average number of hours the presses are used per year averaging 5,000 impressions per hour expressed as a percentage of the total number of hours available, 876 (219 days x 4 hours per day). 100% utilization means all agency presses average operating 4 hours per work day.

** Includes one press stored and not used. This press was not included in determining the agency's utilization.

*** Production data not available.

Another way to look at the utilization of this equipment is as follows. If the 69 presses had been started on January 2 of this year and operated 4 hours a day, 5 days a week the State's total annual production could have been finished by May 5. (Two legal holidays are subtracted.)

State agencies did not keep any records on the utilization of peripheral or support equipment such as collators, folders, cutters, etc., which make up \$501,131 of the State's \$935,973 equipment investment. However, the experience of other states' print shops and commercial facilities is that this type of equipment is used even less than the printing presses.

In addition to under-utilization of equipment, the establishment of small print shops by each agency has led to proliferation and duplication of printing equipment. In many cases the decision to buy equipment was based on availability of funds rather than on justification of equipment based on utilization and cost of operation. For example, the Department of Mental Retardation has a fully equipped print shop with very expensive equipment which cannot be justified by the amount and type of printing produced on that equipment. When compared with a more efficient print shop such as the one at DSS the problem is apparent. Both agency print shops produce practically all the printing required by the respective agency (predominantly forms). Mental Retardation has a total investment in equipment of \$73,987 while DSS' equipment investment is \$89,268. DSS, however, produces 36 times the amount of work done by Mental Retardation. The total equipment investment for each 1,000 impressions per year is \$76.67 at Mental Retardation compared to \$2.52 at DSS.

Under-utilization of equipment is caused by several interrelated factors. First, there is simply too much equipment for the amount of printing to be done. In order to operate at all a print shop must have a press and various types of peripheral equipment. Under the existing system of small autonomous agency print shops each agency must have certain pieces of equipment whether it utilizes them efficiently or not.

Second, there is little or no cooperation or coordination among agency print shops despite the fact that many are located virtually next door to each other. Agencies do not share equipment, thus it is not fully utilized.

Finally, small print shops are not staffed to operate equipment efficiently. In some cases one person is responsible for operating several pieces of equipment. Since he can operate only one machine at a time, other equipment is not used.

State Government should make every effort to perform support functions such as printing as efficiently and economically as possible. In the past, the purchase of printing presses and other machines for small, autonomous agency print shops has not met these criteria. To meet current production levels, the State needs about 30 presses operating about 4 hours per day instead of 69 presses operating an average of 1½ to 2 hours per day. At an average price of \$8,000 each, the 39 unneeded presses cost \$312,000. If peripheral equipment was used at the same efficiency level as the presses, the Council estimates that this \$501,132 investment could have been reduced by at least \$250,000. This is a total of \$562,000 of equipment which is not needed. With an average equipment life of 8 years this means the State has spent \$70,250 annually to purchase new equipment which, if

existing equipment were used efficiently, would not be necessary to achieve present production levels.

Personnel

During its study the Legislative Audit Council conducted a detailed examination of personnel in the 26 agency print shops and found that most of them are inefficiently utilized. There are 82 classified printing personnel, 10 part-time employees and six vacant positions in agency print shops. The following table lists each agency and the number of printing personnel it employs.

TABLE III
PRINTING EMPLOYEES USED BY STATE AGENCIES

<u>Agency</u>	<u>Number of Full-Time Employees</u>	<u>Number of Part-Time Employees</u>	<u>Vacant Positions</u>
Aeronautics Commission*	-	-	-
Dept. of Agriculture	2	-	-
Dept. of Corrections	1	-	-
Criminal Justice Academy	2	-	-
DPA	1	-	-
Dept. of Education	2	-	-
ETV	11	1	-
Employment Security Comm.	6	6	2
Forestry Commission*	-	-	-
Div. of General Services	5	-	-
DHEC	5	-	-
DHPT	7	1	1
Industrial Commission	-	1	-
Judicial Department*	-	-	-
Labor Department	1	-	-
Dept. of Mental Health	5	-	-
Dept. of Mental Retardation	4	-	-
Probation, Pardon & Parole Bd.	2	1	-
Public Service Commission	1	-	-
SLED	1	-	-
Dept. of Social Services	13	-	2
Tax Commission	5	-	-
St. Bd. for Tec. & Comp. Ed.	4	-	-
Vocational Rehabilitation	1	-	-
Water Resources Commission*	-	-	-
Wildlife & Marine Resources	3	-	-
TOTAL	82	10	6

* See list of non-printing personnel, p. 19.

Broken down according to task there are:

	63 Offset Press Operators/Printing Equipment Operators - Levels I, II and III
	16 Printing Service Managers/Printing Production Managers - Levels I, II and III
	2 Bindery Workers
	<u>1</u> Photocopy Specialist
TOTAL	82 Full-time Classified Printing Personnel
	10 Part-time Employees
	6 Vacant Positions

These employees receive annual salaries totaling \$819,006. In addition, fringe benefits cost about \$120,750. The six vacant positions have annual salary and fringe benefits totaling approximately \$44,147.

Currently 17 of the print shops with full-time personnel have 5 or less employees and 10 of these have 2 or less full-time employees. In these smaller print shops the printing equipment operators not only operate presses but also all other supportive equipment used for preparatory work and binding operations. Thus, some equipment is idle while other machines are being used. With the exception of the larger shops (e.g., DSS, ETV, and ESC), personnel trained and employed to perform one specific task are utilized to perform a multitude of varied tasks associated with printing. This lack of specialization results in reduced production and efficiency and under-utilization of trained personnel.

In addition to classified personnel, there are 14 to 17 personnel not classified in the printing classification codes but who are operating printing equipment on a regular or part-time basis. These personnel include:

- 1 Agency Deputy Director - Aeronautics Commission
- 1 Office Services Aide - Department of Health and Environmental Control
- 2 Supply Clerks - Vocational Rehabilitation Department and Judicial Department
- 1 Inventory and Property Control Specialist - Forestry Commission
- 3 Secretaries - Water Resources Commission
- 1 Clerk Supervisor - Water Resources Commission
- 5-8 Prison Inmates - Department of Corrections

These employees are classified to perform duties other than printing. Using them for printing purposes reduces the productivity of these individuals in the jobs for which they are employed, and is an uneconomical and inefficient method of producing the agency's printing.

The main cause of this inefficiency in the use of State employees in printing is the decentralized nature of the printing operations. Agencies with small print shops: (1) cannot employ enough personnel to fully utilize all equipment, and (2) cannot take advantage of the specialization found in larger shops so as to perform various printing tasks more efficiently.

The present organization of agency print shops and the use of personnel contrasts greatly with the organization of commercial shops and print shops in states which have consolidated printing operations. In the strict production environment of commercial shops each employee works only in his or her specialized area and usually operates one machine full-time. This specialization allows for increased productivity because the operator runs the machine all day with only occasional interruption. Also, equipment can be more fully utilized with each machine having a full-time qualified operator. In addition, commercial and consolidated print shops employ managerial personnel

with the training and experience necessary to achieve the highest possible levels of efficiency and economy.

Inefficient utilization of printing personnel has a number of effects. First, there are at present a large number of classified press operators but only a few classified supportive equipment operators. This has resulted in the utilization of press operators to perform tasks not contained in their job description which should be performed by bindery workers or other specialized employees.

Second, because of the proliferation of small (one or two employee) shops there is little qualified management of the printing capabilities of the State, especially in the area of employee utilization and planning. The print shop service managers currently employed are used only in larger shops.

Third, the State's use of personnel not classified in the printing function (secretary-clerical and agency administrators) and under-utilization of classified printing employees lowers the effectiveness and productivity of State print shops and of State agencies as a whole.

Finally, less personnel would be needed if the State were producing its printing in an efficient manner. The Audit Council estimates that only 60 full-time printing employees would be needed to produce the same volume of work in a consolidated print shop with several satellite quick copy centers appropriately placed throughout State Government. The cost to the State for the additional 28 full-time classified positions and the 10 part-time printing personnel is approximately \$385,316 per year including fringe benefits.

Maintenance Contracts

Another cost associated with the State's printing equipment is for maintenance. Eighteen agencies have maintenance contracts totaling \$32,795 to cover repairs on their presses and on some support equipment. Eight other agencies repair the machines themselves and pay only for parts or an occasional visit by a factory representative if needed. For example, ETV, which has one of the most sophisticated print shops within State Government and owns \$167,246 of equipment, does not carry any maintenance contracts. The equipment is maintained by the print shop staff with factory service representatives called in only as needed. Table IV lists each agency which carries maintenance contracts on its equipment.

There are several factors to consider in deciding whether or not to carry maintenance contracts on printing equipment. The machine's age and condition play a big role in this decision as well as the ability of existing personnel to maintain the machine. South Carolina's present system of small agency print shops does not allow for development of expertise in repairing the equipment. In a print shop with only one or two employees, or one where administrative staff operates the equipment, it is much easier for the agency to carry a maintenance contract than to worry about repairs.

TABLE IV
ANNUAL COST OF EQUIPMENT MAINTENANCE CONTRACTS

<u>Agency</u>	<u># of Pieces of Equipment with A Maintenance Contract</u>	<u>Annual Cost of the Maintenance Contracts</u>
Aeronautics Commission	1	\$ 649.92
Department of Agriculture	1	777.96
Criminal Justice Academy	4	2,379.36
Department of Corrections	4	2,719.00
Department of Education	1	834.00
Employment Security Comm.	1	525.00
Forestry Commission	2	847.00
Div. of General Services	5	1,551.84
Dept. of Health & Env. Control	1	832.92
Judicial Department	3	615.72
Labor Department	2	604.92
Dept. of Mental Health	6	5,082.84
Dept. of Mental Retardation	2	915.00
Probation, Pardon & Parole Bd.	1	382.92
Dept. of Social Services	10	7,684.00
Tax Commission	6	5,780.76
Vocational Rehabilitation	1	259.92
Water Resources Commission	1	351.96
TOTAL	52	\$32,795.04

Several states which have consolidated agency print shops have found that maintenance contracts can be eliminated and equipment adequately repaired by print shop personnel. The closer supervision found in these consolidated shops allows for better preventive maintenance and proper upkeep of equipment to prevent breakdowns and repairs. This system, combined with factory representative visits as needed, has proven to be an economical approach to maintaining the equipment. In South Carolina, ETV has shown that this alternative to maintenance contracts is feasible, effective and economical.

The Council has determined that under a consolidated system the \$32,795 now being spent on maintenance contracts could probably be

eliminated and the cost of equipment repairs limited to an estimated \$15,000 a year by using existing printing staff to do preventive maintenance and most repairs, purchasing spare parts and using factory service representatives only as needed. This would result in a savings of approximately \$18,000 a year.

Supplies

The Council found that acquisition and management of printing supplies could be improved. Paper, the major printing supply purchased by the State, is not purchased in the most economical manner. While the State does purchase paper under term contracts which are less expensive than small individual purchases, it is more economical for a print shop to buy paper in very large sheets and to cut it to the desired sizes rather than buy pre-cut paper. Commercial print shops and many states with consolidated print shops have found this to be the most economical method of purchasing paper. At this time only two agencies, the Employment Security Commission and the Educational Television Commission, use this method. In order to cut large sheets to usable size it is necessary to have a paper cutter machine, a qualified person to operate it and sufficient storage space for the paper. Most small autonomous agency shops are not able to meet any of these conditions. The State currently has paper cutters in its equipment inventory and there are personnel qualified to use them, but under the present system of small decentralized print shops this method of purchasing and cutting paper is not feasible and cannot be utilized because individual agency printing volume is too low to justify the expense for the paper cutter and operator.

In addition, term contracts for other print shop supplies such as ink, masters, film, etc. would enable the State to get better

prices for these items. Each agency now purchases these supplies in small quantities and at higher prices than if term contracts were obtained.

Another element to consider when analyzing the operation of a print shop is the waste factor, which includes the amount of obsolete, damaged, or unusable stock in the inventory. Experience in other states shows that this could run from 5% to more than 20% of the supplies used. To keep this cost to a minimum takes proper supervision and adequate inventory control. Twenty-one of the 26 print shops in South Carolina do not have an inventory control system.

The lack of records and inventory control systems makes it impossible to determine the exact degree to which purchasing expenditures and waste can be reduced. However, if obsolete and damaged stock and production scrap were reduced by 5% through better supervision and control, the State would save about \$30,000 of the annual supply expenditure of \$600,000.

Space Utilization

The Audit Council found that the State's printing operations are located in expensive office space instead of less expensive warehouse space or State-owned space which is fully amortized or paid off.

Examination of the 26 agencies with print shops shows that these agencies utilize 34,706 square feet of space for printing. Nineteen (19) agencies use 25,298 square feet at an annual cost of \$109,331. This is an average cost of \$4.32 per square foot. Fifteen of the 19 agencies pay \$5.25 or more per square foot and 11 agencies pay \$5.60 or more per square foot (see Table V). In contrast, ETV rents commercial warehouse space at a rate of \$2.55 per square foot and the State Board of Technical and Comprehensive Education uses fully amortized State-owned space at a rate of \$1.25 per square foot.

TABLE V
COSTS OF AGENCY FLOOR SPACE

Agency	Space Utilized (# of Square Feet)	Annual Cost of Office Space	Cost per Square Foot
Aeronautics Commission	200	*	*
Department of Agriculture	400	\$ 2,327.20	\$5.81
Department of Corrections	1,940	*	*
Criminal Justice Academy	367	*	*
DPA	216	1,209.60	5.60
Department of Education	560	3,136.00	5.60
ETV	4,220	10,800.00	2.55
Employment Security Comm.	1,800	10,800.00	6.00
Forestry Commission	200	*	*
Div. of General Services	2,289	12,818.40	5.60
DHEC	1,025	5,470.00	5.60
DHPT	2,738	*	*
Industrial Commission	60	218.60	5.31
Judicial Department	260	1,456.00	5.60
Department of Labor	721	3,965.50	5.50
Department of Mental Health	3,038	7,807.66	2.57
Dept. of Mental Retardation	2,027	*	*
Probation, Pardon & Parole Bd.	1,740	9,744.00	5.60
Public Service Commission	150	600.00	4.00
SLED	1,936	*	*
Dept. of Social Services	4,709	28,583.63	6.07
Tax Commission	450	2,520.00	5.60
St. Bd. of Tec. & Comp. Ed.	2,600	2,080.00	1.25
Vocational Rehab. Dept.	220	1,265.00	5.75
Water Resources Commission	240	1,380.00	5.75
Wildlife & Marine Resources	600	3,150.00	5.25
TOTAL	34,706		
TOTAL COST OF SPACE			
- 19 agencies reporting costs		\$109,331.59	
- 7 agencies at \$2.75/sq. ft.		25,872.00	
		<u>\$135,203.59</u>	
AVERAGE COST/SQ. FT. OF 19 AGENCIES REPORTING COSTS			\$4.32

* Exact cost associated with this space not available. It is estimated to be at least \$2.75/sq. ft.

Exact floor space costs were not available for the remaining seven agencies with 9,408 square feet. However, the Division of General Services estimates that the cost of maintenance and custodial service alone on administrative buildings is approximately \$2.75/square foot. Using this estimate the cost of printing floor space for these seven agencies is at least \$25,872 per year.

The Audit Council also found many cases where separate print shops are located in close proximity to each other yet do not share space, or equipment, not fully coordinate their activities in order to save expenses. For example:

- (1) Disaster Preparedness Agency and Department of Education are located in adjacent rooms of the same building.
- (2) Tax Commission, Department of Agriculture and General Services are located in adjacent buildings on Sumter Street.
- (3) Department of Social Services, Department of Health and Environmental Control and the Department of Mental Health are located in adjacent buildings on Bull Street.
- (4) Industrial Commission, Department of Labor, Vocational Rehabilitation and Water Resources Commission are located within a 1 to 2 mile radius.
- (5) Forestry Commission, Criminal Justice Academy, SLED and Department of Corrections are located within a 2 to 3 mile radius.
- (6) All agency print shops, with the exception of those located in the Broad River Road area, Airport area and the Department of Mental Retardation in Clinton, South Carolina, are within a five-mile radius of the Capitol Complex.

Printing should be located in warehouse-type floor space rather than more expensive office space. It is a production oriented service using noisy machines and requiring ample supply and storage area. Commercial print shops are always located in the cheaper warehouse-type buildings.

The additional cost of having the printing facilities located in office space is substantial. If all agencies were using floor space at \$2.75/square foot or less the savings would be \$39,861 annually. Information gathered from other states indicates that with a consolidated print shop, square footage requirements could be reduced to about 25,000 square feet with a recurring annual savings of \$66,453.

Record-Keeping

The Audit Council found that of the 26 agencies examined only six kept adequate records of the impressions printed and used this data in making management decisions concerning printing. Nine agencies kept records of volume produced but did not fully utilize the data. Of the remaining agencies ten provided the Legislative Audit Council with an estimate of the volume of the print shop based on recorded paper usage or number of forms produced, and one agency (Public Service Commission) could provide no estimate of volume produced. In addition, no agencies kept any records regarding the productivity of personnel, individual presses, or peripheral equipment.

This condition is the result of inadequate management practices and the lack of management supervision. It is imperative to know the volume, type of work and productivity of all equipment at any time in order to make daily production and management decisions. At least one commercial shop in Columbia feels this information is so vital that detailed productivity figures are tabulated daily and stored on line in a computer. Also, in North Carolina, which has consolidated most of its printing facilities, detailed production data and other information is tabulated regularly and used as a basis for billing the work done for agencies.

RECOMMENDATIONS

LEGISLATION SHOULD BE PASSED DIRECTING THE BUDGET AND CONTROL BOARD TO CONSOLIDATE ALL STATE AGENCY PRINT SHOPS IN THE COLUMBIA AREA AND FORM ONE SELF-SUFFICIENT STATE GOVERNMENT PRINT SHOP (SEE APPENDIX I). THE AUTHORITY AND RESPONSIBILITY FOR OPERATING THIS PRINT SHOP AND PROVIDING STATE AGENCIES WITH THEIR PRINTING NEEDS INCLUDING QUICK COPY SATELLITE CENTERS SHOULD BE ASSIGNED TO THE DIVISION OF GENERAL SERVICES. GENERAL SERVICES SHOULD PREPARE AND IMPLEMENT A PLAN FOR CONSOLIDATION TO INCLUDE:

- (A) AGENCY PRINT SHOPS (EQUIPMENT, PERSONNEL, SUPPLIES) SHOULD BE CONSOLIDATED AND GRADUALLY PHASED INTO THE CENTRAL FACILITY, BEGINNING WITH THE SMALLER PRINT SHOPS.
- (B) THE STATE PRINTING OFFICE, RESPONSIBLE FOR REVIEWING/APPROVING ALL CONTRACTUAL PRINTING, SHOULD BE TRANSFERRED TO THE CENTRAL FACILITY TO ALLOW FOR BETTER COORDINATION AND CONTROL OF ALL PRINTING.
- (C) THE STATE GOVERNMENT PRINT SHOP SHOULD BE EFFICIENTLY ORGANIZED WITH SEPARATE DEPARTMENTS AND QUALIFIED SUPERVISORS FOR EACH MAJOR PRINTING FUNCTION: PREPARATION,

LAYOUT AND CAMERA WORK; PRESSES; COLLATING,
CUTTING, BINDING.

- (D) REDUCE PRINTING PERSONNEL FROM 88 FULL-TIME POSITIONS AND 10 PART-TIME EMPLOYEES TO 60 FULL-TIME EMPLOYEES.
- (E) REDUCE THE PURCHASE OF NEW EQUIPMENT.
- (F) ESTABLISH A PRINTING FACILITY WITH 25,000 SQUARE FEET OF WAREHOUSE SPACE AND REASSIGN THE EXPENSIVE OFFICE SPACE NOW BEING USED.
- (G) ESTABLISH AN INVENTORY CONTROL SYSTEM WITH BULK BUYING OF SUPPLIES.
- (H) REDUCE OBSOLETE AND DAMAGED STOCK AND PRODUCTION SCRAP THROUGH BETTER SUPERVISION AND CONTROL.
- (I) ESTABLISH, EQUIP, AND OPERATE SATELLITE QUICK COPY CENTERS THROUGHOUT STATE GOVERNMENT USING THE MOST COST-EFFICIENT, QUICK COPY SYSTEMS.
- (J) DEVELOP A WORK ORDER COST ACCOUNTING SYSTEM WITH AN APPROPRIATE BILLING SYSTEM.
- (K) ESTABLISH A PICKUP AND DELIVERY SYSTEM AMONG STATE AGENCIES.

(L) DEVELOP AN EQUIPMENT MAINTENANCE ABILITY
WITHIN THE PRINT SHOP AND ELIMINATE
MAINTENANCE CONTRACTS.

(M) TAKE OVER THE PRINTING OF AGENCY LETTER-
HEADS NOW GOING TO COMMERCIAL VENDORS.

CHAPTER III
QUICK COPY CENTERS

INTRODUCTION

Under certain circumstances neither a large consolidated print shop nor a standard photocopying machine is most appropriate for meeting an agency's printing needs. In general, these types of jobs:

- (1) require a moderate number of copies (too few to be economical for a large printing machine, too many to be economical for standard photocopying);
- (2) must be completed quickly (usually a few hours); and
- (3) require little in the way of pre-printing preparation or peripheral equipment (usually a collator and a stapler are all that are required).

In many cases these jobs can best be handled in "quick copy" centers. "Quick copy" capability can be provided in two ways; through the use of a high speed photocopying system which sorts and collates the reproduced copies and/or through the use of a high speed automated offset system. Currently State agencies are using the photocopying system.

The Xerox Corporation was the first and, until recently, the only bond copier company to develop a copying/duplicating system to compete against offset presses in meeting short run duplicating needs. Xerox produces a very sophisticated photocopying system called the Xerox 9200/9400 which is currently used by eight State agencies and three universities.

An alternative to the 9200 is the automated offset system. The two major producers of this type of system are the A. B. Dick Company and the Addressograph Multigraph Corporation. This system

consists of a photostatic master maker which automatically feeds masters to an offset press, which prints the copies and then sorts and collates them. The 9200 System performs many of the same functions yet costs as much as one third more than an automated offset system. The 9200 System is slightly faster on a short run basis but both systems can handle normal workloads equally.

Cost Comparison

The Audit Council analyzed the monthly billings and production for ten 9200 machines in eight agencies and compared the costs of producing the same output on an automated offset system (for detailed methodology, see Appendix IV). For the eight to ten month period examined in FY 77-78, only two 9200 machines located at DHPT and Vocational Rehabilitation were more economical to operate than a comparable automated offset system. In these instances the 9200 was used strictly as a copier (1-10 copies of an original) and not as a reproduction or duplicating system (10 or more copies per original sorted and collated). These two machines were on a copier pricing plan rather than the pricing plan for the duplicating system. In all other cases, the 9200 was used as a duplicating system and the monthly cost was about one third more than the comparable automated offset system. The additional cost of using the 9200 machines instead of automated offset systems was \$37,373 for the period studied. Annualized, the additional cost would have been \$51,804 for FY 77-78. Table VI lists each agency and the cost comparison of the 9200 System with an automated offset system.

TABLE VI

COST COMPARISON OF THE 9200 SYSTEM WITH A COMPARABLE AUTOMATED OFFSET SYSTEM

<u>Agency</u>	<u># Months Reviewed</u>	<u>Total # of Copies Produced</u>	<u>Actual 9200 Cost for FY 77-78*</u>	<u>Cost to Produce the Same Volume on a Comparable Offset System</u>	<u>Actual Additional Cost in Using 9200</u>	<u>Annualized for FY 77-78</u>
Division of Administration	10	2,027,517	\$ 23,488.48	\$ 18,151.04	\$ 5,337.44	\$ 6,404.88
Department of Education	9	1,894,290	15,394.25	12,564.62	2,829.63	3,771.80
Employment Security Comm.	9	2,222,584	20,672.78	15,392.07	5,280.71	7,041.00
General Services (Brown Building Print Shop) - 9200	8	2,878,549	24,455.11	15,248.67	9,206.44	13,809.72
DHEC	8	2,232,033	17,280.61	13,032.09	4,248.52	6,372.84
DHPT						
- short run machine**						
- long run machine	8	1,733,551	14,506.50	11,846.78	2,659.72	3,989.64
DSS						
- 3rd floor machine	9	1,517,246	21,381.61	16,647.11	4,734.50	6,312.72
- print shop machine	9	1,699,945	17,504.08	14,427.39	3,076.69	4,102.20
TOTAL		16,205,715	\$154,683.42	\$117,309.77	\$37,373.65	\$51,804.80

* Additional costs for less than 5 copies made per original is excluded. Costs include operating supplies excluding paper.

** DHPT's short run machine and a 9200 System at the Department of Vocational Rehabilitation were not included in the analysis. These 9200 Systems are on a "copier pricing plan" which is not directly comparable to an automated offset system. The 9200 System when used as a copier (1-10 copies) rather than a duplicator is more economical.

The proliferation of these photocopying machines is due to several factors. First, the vendor's marketing and sales efforts have proven successful in placing these machines in State agencies. Also, sufficient analysis usually was not made by the agency concerning its real needs and the proper equipment to fill them. Most agencies chose the 9200 System without making an adequate cost benefit analysis of all possible alternatives including the automated offset systems.

Secondly, another reason used to justify leasing a 9200 System is that the skill level required of the operator (photocopy specialist) is lower than that required for an offset system operator and an agency can use personnel with a minimum of training. However, when the Council made its review, eight of ten machines were being operated by personnel then classified as either an Offset Press Operator, Printing Services Manager, or Graphic Arts Supervisor all of whom are paid more than a Photocopy Specialist. Also, a Photocopy Specialist (Grade 10) is paid only \$681 per year less than a Printing Equipment Operator I (Grade 13).

Finally, the State Printing Office and ultimately the Budget and Control Board has to approve the purchase or rental of such equipment. However, an adequate job of reviewing agency justifications has not been done. No cost comparisons were performed and the 9200 Systems were installed without analysis of alternative systems.

The efficient operation of such a quick copy center is important if the State is to get the maximum out of its printing dollar while satisfying the demands of the agency for high quality work within a

short period of time. This includes proper choice of equipment. In analyzing any fast copy duplicating system a decision has to be reached on how much will be paid for speed and convenience. It is the experience of other states that the additional cost for the 9200 System is not justified in meeting government's quick copy requirements.

A study performed by the University of South Carolina also reached this conclusion. The USC Print Shop did a comparative cost analysis of the 9200 System with the automated offset system it uses and estimated savings of approximately \$7,797 over a six month period by using the offset system.

Several states are using the quick copy center concept under the control of one central state office rather than each agency trying to meet its own printing needs. For example, North Carolina is using this management method successfully. They completely eliminated the 9200 System because it was too expensive and are now using automated offset systems in their quick copy centers.

The Audit Council's analysis has shown that the use of the 9200 System is not the most economical approach to meeting the State's quick copy requirements. The additional cost in FY 77-78 for the 9200 Systems was approximately \$51,804 more than comparable automated offset systems. Other states' experience has shown that the automated offset system produces high quality copies, meets the workload demands of the quick copy center environment and is a more economical way of serving the agency.

RECOMMENDATIONS

ALL STATE AGENCY "QUICK COPY" CENTERS SHOULD BE UNDER THE CONTROL OF THE STATE GOVERNMENT PRINT SHOP (SEE PAGE 29). ALL 9200 SYSTEMS NOW USED IN STATE GOVERNMENT SHOULD BE REEVALUATED, AND ONLY THE MOST COST EFFICIENT DUPLICATING/QUICK COPY SYSTEMS SHOULD BE USED.

CHAPTER IV
PHOTOCOPYING

During the past decade, the State has made a substantial investment in the purchase and rental of photocopying machines and the supplies associated with these copiers. These machines are used on such a wide scale that they have become essential to the daily operations of government. In April 1977 the Audit Council surveyed 106 State agencies, colleges and universities concerning their use of copiers. At that time survey responses showed that the State was using 936 photocopying machines producing an estimated 87.7 million copies annually. The Audit Council estimates, based on the survey responses, that in FY 76-77 the cost of these copiers including rental fees, supplies, and maintenance was over \$3.4 million. Based on the continued growth of State Government the cost in FY 77-78 was even higher.

Management of copiers and their use has not been adequately developed. The Council found there is no agency, office, or individual in the State that knows what the State is actually spending in this area nor is there any central authority available for evaluating the State's use of copiers and the proper selection of machines to meet the needs of an agency.

This lack of adequate control by the State of its copying expenditures is caused by several factors. First, no office or agency has been mandated to manage all the copiers in the State. The selection of copiers is made by each agency and in many cases by many individuals within the agency. Since copiers are in a support function to the agency's program mission, adequate analysis is not

always done by the individual selecting the machine. Often the person choosing the photocopying machine has little expertise in the area of photocopying and must rely on information furnished by the vendor. Vendor sales representatives continually visit the person(s) within an agency responsible for selecting a machine and often a machine is chosen based on the selling performance of the vendor or how much money is in the budget rather than analysis of the agency's needs. After copiers are installed agencies do not systematically review the billing and the performance of the machine for efficiency and economy. Agency personnel usually do not have the time to do this since copier selection is only one of many jobs assigned to them. This situation greatly increases the chance that a machine may be acquired which is neither the most beneficial to the agency nor the most economical to the State.

Another reason for the lack of statewide coordination and knowledge of copier expenditures is the fact that each agency receives and pays its own bills for its copier use. Information concerning volume produced, pricing plans, cost per copy, and supply costs is not accumulated statewide. Thus the information is not available for review and comparative analysis on a statewide level.

Also, it was not possible to determine the amount being spent on copiers through the budget codes. The costs associated with copiers were scattered through a variety of budget codes. For example, copier rental was included in the budget code for rental of other types of equipment. Copier supplies including paper were grouped with office supplies such as stationery, pencils, etc. The end result is

that the State does not have a complete, regularly updated data base from which it can determine the most economical machine available for the service needed. Without such information, meaningful policy decisions regarding photocopying cannot be made.

The development of centralized expertise and control over copiers has been used by other states to control copier proliferation. For example, North Carolina has copying specialists in its Division of Administration to monitor all copiers and their use. Vendors are required to submit monthly reports to this office listing each machine, its location, the billing plan, amount of the invoice, the monthly minimum charge and the actual number of copies produced. This has facilitated improved control over the use of the copiers and the placement of the proper machine to meet the needs of the service area.

North Carolina last year established competitive bidding for copying machines. State agencies' photocopying needs were surveyed and different categories were established according to the copier capability needed. Vendors then bid for the contracts. No agency can purchase or lease a copier directly from the vendor. If a machine with special capabilities is needed it is put out on a competitive bid. North Carolina estimates this practice will save \$1 million over a two-year period.

Texas also has placed all leased or purchased copiers in state government on a term contract and reports saving hundreds of thousands of dollars per year as a result.

There are several effects of the lack of control over purchasing, leasing and use of photocopying machines. One effect is

diminished effectiveness of administrative personnel. It is inefficient and unproductive for personnel in each of more than one hundred agencies, boards, commissions, colleges and universities to develop a knowledge of copying equipment and deal with the many vendor sales representatives. It is time consuming to develop this expertise and agency administrators have important responsibilities other than copier selection and control.

The lack of control also can allow for a proliferation and duplication of equipment strictly for convenience regardless of the cost and as long as there is money in the budget. Inadequate control and monitoring increases the potential for waste and inhibits elimination of unneeded machines and copiers with unnecessary features. Also, it is difficult to consolidate equipment so that work is billed at a lower rate through a high volume pricing plan. All of these effects add up to uneconomical spending of State funds.

Recently, several steps have been taken to gain more control over photocopiers. In March 1978, the Division of General Services' Central Purchasing Office began developing information for the initiation of a term contract for office copiers. Copier specifications and usage categories are being determined and bid notices for both lease and purchase of copiers will be issued and a contract awarded. Central Purchasing hopes to award a contract by January 1979.

The Division of Administration has awarded LBC&W Consultants, Inc. a \$10,000 contract to perform a photocopy feasibility study in the Capitol Complex area for the Budget and Control Board. The purpose of this project is to provide management information regarding feasibility and cost of centralizing copiers in one or more locations of selected agencies.

Additionally, at the recommendation of the Audit Council, the Comptroller General's Office has established separate budget codes for photocopying expenditures (see p. 57). These actions should strengthen State Government's efforts to gain control over the placement and use of photocopiers.

RECOMMENDATIONS

THE BUDGET AND CONTROL BOARD SHOULD ASSIGN THE DIVISION OF GENERAL SERVICES THE RESPONSIBILITY AND AUTHORITY FOR MONITORING AND EVALUATING THE USE OF ALL PHOTOCOPIERS IN THE STATE.

NO AGENCY OR DEPARTMENT SHOULD BE ALLOWED TO PURCHASE, LEASE, OR RENT A PHOTOCOPIER WITHOUT APPROVAL FROM GENERAL SERVICES. GENERAL SERVICES SHOULD REQUIRE ALL VENDORS WHO HAVE LEASED OR RENTED PHOTOCOPYING EQUIPMENT USED BY THE STATE TO SUBMIT A MONTHLY MACHINE UTILIZATION REPORT. THIS REPORT SHOULD IDENTIFY EACH MACHINE, ITS LOCATION, THE PRICING PLAN, THE TOTAL NUMBERS OF COPIES MADE, AND THE TOTAL MONTHLY BILL. VENDOR SALES REPRESENTATIVES SHOULD ONLY BE ALLOWED TO DEAL DIRECTLY WITH GENERAL SERVICES. GENERAL SERVICES SHOULD HAVE A COPIER EXPERT TO BE THE LIAISON BETWEEN VENDORS AND AGENCIES. THIS PERSON SHOULD HAVE THE RESPONSIBILITY TO MONITOR AND TO EVALUATE MACHINE UTILIZATION.

GENERAL SERVICES SHOULD DOWNGRADE, ELIMINATE OR CONSOLIDATE MACHINES WITHIN AGENCIES WHEN IT IS IN THE BEST INTEREST OF THE STATE.

GENERAL SERVICES SHOULD ANNUALLY DETERMINE AGENCY COPIER NEEDS AND DEVELOP CATEGORIES OF COPIERS WHICH WILL MEET THESE NEEDS. THESE CATEGORIES WITH THE SPECIFICATIONS SHOULD BE PLACED ON COMPETITIVE BID AND A TERM CONTRACT AWARDED TO THE VENDOR WHO CAN PROVIDE THE MACHINES NEEDED AT THE LOWEST COST PER COPY. THE VARIABLES USED IN DETERMINING THE "COST PER COPY" SHOULD INCLUDE MACHINE RENTAL, SUPPLIES AND MAINTENANCE COSTS.

CHAPTER V

CONTRACTUAL PRINTING

A significant volume of the State's printing is performed by commercial printing vendors. The commercial printers supply the State with large amounts of letterhead, envelopes, forms and business cards. In addition, they print almost all the more complex items such as snapout and continuous forms, maps and full color brochures. Over the past several years, an increasing amount of jobs have been sent out to commercial printers, as the table below illustrates.

TABLE VII

PRINTING CONTRACTS AWARDED FY 73-74 TO FY 77-78

<u>Year</u>	<u># of Contracts Awarded</u>	<u>Total Amount of Contracts</u>	<u>% of Dollar Increase from Previous Year</u>
FY 73-74	2,690	\$1,618,141	-
FY 74-75	2,611	1,740,440	7.5%
FY 75-76	3,387	2,945,031	69.2%
FY 76-77	5,518	4,056,662	37.7%
FY 77-78	5,228	4,957,948	22.2%

As shown above in FY 77-78 the State awarded 5,228 contracts worth \$4.9 million. The Council reviewed contracts awarded during FY 77-78 for letterhead, envelopes and business cards totaling \$355,265 and found two uneconomical purchasing practices; frequent ordering of small quantities and the use of more than one color ink printed on expensive paper stocks.

Many agencies are ordering commonly used items such as letterhead and envelopes in extremely small quantities, resulting in higher

prices. For example, the Department of Youth Services (DYS) ordered letterhead and envelopes 21 times during FY 77-78. No contract was for a quantity more than 2,500 with most orders being for quantities of 1,000. Had DYS ordered all of these items at one time the two color ink letterhead on Ivory Coast 22 lb. Gilcrest Laid Bond Paper would have cost approximately \$1,691.25 instead of the actual \$2,128.27, for a savings of \$437.00. Even a greater savings could have been gained if DYS had letterhead printed with one color ink on State Seal bond paper and used General Services' print shop. The cost would only have been \$647.00 for a savings of \$1,481.27. Similarly, the Vocational and Rehabilitation Department submitted 59 orders for #10 24 lb. white wove envelopes printed in black ink. The 344,000 envelopes cost \$3,979.93. If one order had been placed with either a commercial vendor or the General Services print shop the cost would have been approximately \$2,408.00 for a savings of \$1,571.93.

Frequent ordering of small quantities also involves an additional administrative cost for processing the orders. It costs the State \$12.55 per order for the State Printing Office to take bids, award the contract and process the paperwork. In the examples given above it cost the State \$978.90 more than the administrative cost would have been if each agency had ordered letterhead and envelopes only once.

The second uneconomical practice the Council found is the purchase of letterhead, envelopes, and business cards printed in two or three colors and/or engraved. The Council found that 44% of all letterhead printed commercially was in two or three colors and 17.5% was engraved. Also 67% of State business cards

were in two or three colors and 11% were engraved. Twelve percent (12%) of all envelopes were printed in two or three colors and 1% were engraved.

Additionally some agencies regularly use higher priced special types and grades of paper for letterhead, business cards and envelopes instead of standard, high quality paper (State Seal bond for letterhead and #88 white vellum card stock for business cards). The following are examples of printing purchases compared to the cost of the job if it had been printed commercially on the standard paper.

<u>Agency</u>	<u>Job</u>	<u>Actual Cost</u>	<u>Cost if Printed on State Seal Bond in 2 colors</u>
DYS	1000 8½"x11" sheets of 2-color ink on Ivory Coast 22 lb. Gilcrest Laid Bond	\$ 62.00	\$ 45.00
Dept. of Wildlife & Marine Resources	45,000 8½"x11" sheets of 2-color ink on India White Gilcrest Laid Bond with the ghost image of the State Seal	988.00	539.10
Dept. of Agriculture	500 2-color business cards on Chatham Tan #65 Classic Laid Stock	49.50	16.80
Museum Commission	1500 2-color business cards on Weyer-Haeuser Kilmong Exec. Stock	78.00	35.00

Even greater savings could be achieved if letterhead, envelopes, and business cards were printed in one color ink. The following examples are actual jobs and their cost compared with the job's cost had it been printed in one color ink on standard, high quality paper and not engraved.

COST COMPARISONS OF PRINTING JOBS

<u>Agency</u>	<u>Jobs</u>	<u>Actual Cost</u>	<u>Commercial* Cost</u>	<u>General Services* Print Shop Cost</u>
	<u>(Letterhead)</u>			
Aeronautics Commission	1,000 sheets of 8½"x11" 24 lb. blue & gold ink engraved letterhead on rising line Marque Antique Ivory & 1,000 9½"x4¼" envelopes printed in same manner	\$270.00	\$ 57.50	\$ 28.00
Alcoholic Beverage Control Commission	500 sheets of 7¼"x10¼" blue & gold ink engraved letterhead on Old Hampshire Bond and 500 envelopes in blue ink	198.00	46.50	20.75
Development Board	2,000 8½"x11" blue & gold ink engraved letterhead on Ivory Strathmore 25% Rag and 2,000 #10 envelopes in blue ink on Ivory Strathmore 25% Rag	325.00	65.00	47.50
Human Affairs Commission	10,000 8½"x11" letterhead - 3 colors on one side, one color on the backside	280.00	140.00	100.50
	<u>(Envelopes)</u>			
Retirement System	5,000 #10 envelopes in blue ink and engraved on Old Hampshire Bond, 100% Rag	435.00	115.00	53.50
Juvenile Placement and Aftercare	10,000 #10 envelopes printed with gold and black ink on State Seal Bond	232.00	96.00	85.50
Personnel Division	5,000 #10 envelopes printed with gold and black ink on State Seal Bond	144.50	60.00	53.50
	<u>(Business Cards)</u>			
Nuclear Advisory Council	500 blue & gold ink engraved business cards	75.00	13.50	7.50
Aeronautics Commission	500 black & gold ink engraved business cards	85.00	13.50	7.50
Dept. of Health & Environmental Cont.	250 blue & gold ink engraved business cards	67.00	11.00	5.00

*Costs based on letterhead - State Seal Bond, one color ink envelopes - #10 24 lb. white wove, one color ink business cards - #88 white vellum card stock, black ink

These practices exist because of the lack of overall State standards for printing. Since each agency is autonomous and there are no standards, agency purchases of letterhead, envelopes and business cards are based on budget allowances and the "image" the agency wants to present. None of the letterhead, envelopes, business cards and some commonly used forms, such as leave forms, used by State agencies are in a standardized format. Most agencies have their own distinctively designed letterhead and envelopes printed in a multitude of colors which contain various seals and symbols, long lists of commissioners and other officials, and agency logos. All agencies visited by the Audit Council had different types of leave forms ranging from 8½" x 11" sheets to 4" x 6" index cards to 2 and 3 part multi-colored forms.

State agencies should be able to obtain high quality printing at an economical price which is acceptable for the day to day running of State Government. The use of multi-colored, engraved or specialty printing is costly and does not aid the effectiveness of State Government. Letterhead, envelopes and business cards are functional items and should not be extravagant.

The Joint Committee on Printing of the Congress of the United States has promulgated Government Printing and Binding Regulations which reflect these criteria. For example, the Committee has mandated the use of standard papers and emphasized that "It is the opinion of the committee that types, grades, or weights, other than those given under these standards generally constitute waste in public printing, and it is directed that the procurement or use of such paper types, grades, or weights, for printing, binding, or duplicating be discontinued." (Section 34-2)

As concerns color printing:

(Section 18-1). The committee recognizes that printing in two or more colors generally increases costs. Consequently, it is the responsibility of the head of any department, independent office or establishment of the Government to assure that all multicolor printing shall contribute demonstrable value toward achieving a greater fulfillment of the ultimate end-purpose of whatever printed item in which it is included.

(Section 18-2). Demonstrably valuable multicolor printing, for the purposes of these regulations, includes the following categories:

- (a) Maps and technical diagrams where additional color is necessary for clarity.
- (b) Object identification (medical specimens, diseases, plants, flags, uniforms, etc.).
- (c) Safety programs, fire prevention, savings bonds programs, and competitive areas of personnel recruiting.
- (d) Areas wherein clearly identifiable savings in costs can be soundly predicated on multicolor use.
- (e) Printing for programs required by law, whose relative success or failure is in direct ratio to the degree of public response, and where that response can be logically attributable to the number of colors planned and the manner in which they are proposed to be used.

Color for promotional or motivational purposes such as programs concerning public health, safety, consumer benefits; or to encourage utilization of Government facilities and as programs for social security, medicare, and certain areas of need for veterans would come within this category.

(Section 18-3). Multicolor printing which does not meet the demonstrably valuable contribution requirement of these regulations, includes but is not exclusively limited to the following categories:

- (a) Printed items wherein additional color is used primarily for decorative effect.
- (b) Printed items where additional color is used primarily in lieu of effective layout and design.

- (c) Printed items where additional color is used excessively, i.e., four colors when two or three will fulfill the need; three colors when two are adequate; two colors when one is adequate.
- (d) Printed items wherein the inclusion of multicolor does not reflect careful, competent advance planning which recognizes the contribution the use of color is expected to make to the ultimate end-purpose.

The Committee was explicit about business cards, "Printing or engraving of calling or greeting cards is considered to be personal rather than official and shall not be done at government expense."
(Section 20)

The letterhead and envelopes used by members of the South Carolina General Assembly are printed in one color ink on State Seal bond paper. This also should be sufficient for any State agency.

The effect of these inefficient and uneconomical practices is increased cost. Savings can be gained through standardization of letterhead, allowing only one color printing on high quality paper, and by doing this printing within the State's own printing facilities. Savings could also be achieved by prohibiting the printing of business cards at government expense. The Council estimates that if these two steps had been in effect in FY 77-78 for all letterhead and business cards, \$49,302 would have been saved. Additionally, if the 6 million standard #10 envelopes (25% of all envelopes purchased) had been bought and printed at one time the savings in FY 77-78 would have been approximately \$10,000.

RECOMMENDATIONS

THE BUDGET AND CONTROL BOARD SHOULD DIRECT THE
STATE PRINTING OFFICE TO ESTABLISH STANDARDS

TO LIMIT THE TYPES OF PAPER STOCK, NUMBER OF COLORS OF INK AND SPECIALTY PROCESSES SUCH AS ENGRAVING USED BY STATE AGENCIES FOR LETTER-HEAD, ENVELOPES, AND COMMONLY USED FORMS.

THESE STANDARDS SHOULD INCLUDE:

- (1) NO MORE THAN ONE COLOR OF INK SHOULD BE USED.
- (2) THE QUALITY OF PAPER SHOULD BE NO GREATER THAN THAT OF STATE SEAL BOND PAPER.
- (3) NO ENGRAVING OR OTHER SPECIALTY PROCESSES BE ALLOWED FOR LETTERHEAD AND ENVELOPES.

BUSINESS CARDS SHOULD NOT BE PRINTED AT GOVERNMENT EXPENSE.

THE STATE PRINTING OFFICE IN CONJUNCTION WITH STATE AGENCIES SHOULD STANDARDIZE THE FORMAT OF ALL COMMONLY USED FORMS, LETTERHEAD AND ENVELOPES.

ALL AGENCIES UTILIZING PRINTED MATERIALS SHOULD REQUEST THOSE MATERIALS IN THE LARGEST QUANTITIES POSSIBLE IN ORDER TO TAKE ADVANTAGE OF THE LOWER "BULK BUYING" PRICES. THE STATE SHOULD PURCHASE THE STANDARD ENVELOPES USED BY ALL AGENCIES THROUGH ONE CONTRACT TO OBTAIN THE BEST POSSIBLE PRICE.

THE STATE SHOULD UTILIZE ITS OWN PRODUCTION
PRINTING CAPABILITIES TO THE FULLEST EXTENT
IN ORDER TO OBTAIN THE BEST PRICES ON LESS
COMPLEX ITEMS SUCH AS LETTERHEAD.

CHAPTER VI
BUDGET CODES

The Audit Council found that the budget codes did not allow adequate separation and identification of the major categories which constitute the costs of printing and photocopying. One method of determining costs associated with government activities is to obtain the necessary fiscal data from past and current South Carolina budgets. However, using the budgetary data available there was no way to determine the total amount being spent for printing and photocopying and their components such as equipment, supplies and maintenance.

The 1977-78 Classification and Codes manual issued by the Office of the Comptroller General had only two references to printing; codes 0205 and 0304. Classification Code 0205, Printing, Binding and Advertising states:

"To include all expenditures for printing, public reports, bulletins and other publications... To include all expenditures for advertising and legal notices."

Code 0304 follows by specifying that:

"...printing, multigraphing and mimeographing of forms, records and stationery will be classified as office supplies."

The leasing of photocopying machines was lumped in with equipment rents (0404) which includes all rental equipment other than data processing equipment. Similarly, the purchase of printing equipment was contained within Classification 0601, Office Equipment.

This lack of specificity in defining items covered by the budgetary codes led agencies to use many different codes to report the same information. For example, the Audit Council's survey

requested that agencies list all budget code categories used to report expenditures associated with printing and photocopying during FY 76-77. Analysis of this data shows that the same type expenditure, rental of photocopying machines, was listed by agencies in eight different budgetary categories. In the area of printing, six different categories were used for the purchase of paper, inks and masters and three for maintenance contracts.

The budget codes are designed to define the nature of an expenditure and to tell a legislator or an agency administrator what is budgeted in a particular area. Then, the amount actually spent can be determined through monitoring the corresponding disbursement codes of the Comptroller General's monthly trial balance or the Fiscal Accountability Act's expenditure reports. It is important for the purposes of legislative oversight and agency management that decision-makers have immediate access to accurate fiscal information upon which policy decisions can be based. Little accurate fiscal information pertaining to printing and photocopying could be obtained from examination of expenditures listed under the budgetary codes.

The end result of this absence of accurate fiscal information is that the amount of control decision-makers can exert over printing and photocopying is diminished. For example, should the Legislature wish to cut printing expenditures by ten percent they would not know how much money was being deleted or what specific areas (supplies, equipment, etc.) such a cut would affect.

The Audit Council brought these budget code inadequacies to the attention of the Comptroller General's Office in June 1978. The Council suggested seven mutually exclusive budget code categories

be established in order to report printing and photocopying expenditures more accurately. They are:

- 0221 Printing-State
- 0205 Printing-Binding and advertising-Commercial
- 0315 Printing Supplies
- 0316 Photocopying Supplies
- 0406 Rents-Photocopying Equipment
- 0609 Printing Equipment
- 0613 Photocopying Equipment

The Comptroller General's Office implemented these recommendations and included the new categories in the 1978-79 Classification and Codes manual. These codes, along with their corresponding disbursement codes, should provide legislators and agency administrators with accurate fiscal information regarding the State's printing and photocopying.

CHAPTER VII

ANALYSIS OF PRINTING OPERATIONS IN OTHER STATES

The Legislative Audit Council surveyed other states in order to determine the status of their printing operations. A detailed questionnaire asking for fiscal information, policies and procedures and technical information was distributed. In addition, one section of the questionnaire contained specific inquiries to be completed by those states with some form of consolidated print shop(s). The following is a summary of the responses of the nineteen states that provided information to the Audit Council.

Almost all states responding had initiated some form of consolidation; seventeen of nineteen states, or 89%, utilized one or more central facilities. In eight states, all agencies shared several central plants and three states had one central print shop. In only one state did each agency maintain its own printing capability. Fifteen states provided costs associated with in-house printing. The average annual cost was \$4.1 million per year. New Mexico spent the least with \$510,000 and California the most with a budget of \$30 million. The average volume produced by in-house printing of states reporting was 137 million impressions annually. Of those states which provided data concerning volume, Virginia produced the highest number of impressions with 545 million. Ten states utilized non-salaried employees in printing. This group consisted mainly of prison labor and did an average of 3% of all state printing in these states. All states responding had established quick copy centers in high volume areas. The equipment used was generally automated offset systems. The quick copy centers usually printed a maximum of 1,000 copies per job. In

the area of photocopying, 16 states responded that responsibility for approval of photocopying machines resided in their central purchasing division, general services department or some other group of specialists. In only two states did agencies retain the responsibility for procuring this equipment.

Part II of the survey pertained only to those states with consolidated printing facilities. One question dealt with the problem of setting priorities in a consolidated print shop. Six states replied that work was done on a first come, first serve basis while in three others work was scheduled by print shop management. Most states specified that printing involving public health or other emergencies got top priority. All consolidated print shops also had formalized charge systems. In most cases the rates were reviewed regularly and agencies were billed monthly by computer. Six states were able to determine the total cost savings resulting from consolidation. For example, consolidation in Kansas resulted in a savings of \$1.6 million. The overall recurring annual savings resulting from consolidation in those six states averaged \$508,000.

Most of the states surveyed identified areas of major success resulting from consolidation. The areas most mentioned were; monetary savings, increased production and efficiency, improved staff utilization and better equipment utilization. Similarly, most states identified problem areas encountered in consolidation. The overwhelming response listed was the problem of agency opposition to consolidation.

During the past several years there has been a growing trend in other states to consolidate printing facilities. Some states

have located previously decentralized shops into one main location. Other states have established several printing plants for the use of all agencies. Another alternative has been to keep print shops in large agencies while consolidating smaller shops into one separate production facility. Consolidation was accompanied by improvements in administrative and supportive services. Several states have instituted automated billing systems, centralized purchasing and storage of supplies, redefined administrative duties and located quick copy centers in high volume areas. The following is an overview of three consolidated state printing systems and their current status.

North Carolina

North Carolina is currently in the process of consolidating its printing facilities as recommended by the Governor's Efficiency Study Commission. In the past 2 years, nine agency print shops have been consolidated into one central plant under the Division of Administration located in downtown Raleigh. Volume for this facility is approximately 60 million impressions annually. The staff consists of 26 full-time employees working one shift. All printing is done on 18 offset presses which were obtained from the agency print shops which were consolidated. Agencies are charged set rates for services and billed by computer. These revenues are the sole funding source for the print shop. The manager issues weekly reports summarizing productivity, costs and revenues. There are also four satellite centers employing five people located in the Capital Complex. The quick copy centers utilize automated offset systems to produce approximately 10 million

impressions annually. These centers also serve as a pickup and delivery point for printing done at the central facility. North Carolina State Government also uses a large prison print shop and the printing facility at North Carolina State University, both of which are similar in equipment and operation to a commercial print shop.

Problems, Solutions and Successes

When consolidation began the North Carolina General Assembly did not appropriate funding to cover initial costs for personnel and equipment. As a result, the central printing facility has been operating at a deficit. There were also some morale problems because not enough supervisory positions were available for the printing supervisors transferred to the new plant. Also, there was early agency opposition to consolidation.

North Carolina has effectively halted the proliferation of printing equipment and personnel which was occurring before consolidation. Agencies are more satisfied with the quality of printing and the fact that they do not have to run individual print shops themselves. North Carolina has also instituted the practice of placing most photocopying machines on term contract. They estimate this practice will save the state over one million dollars in a two-year period.

Alabama

As a result of an extensive research project carried out by the Printing and Publications Division of the Department of Finance in 1977, Alabama has begun consolidation of its printing facilities.

Twenty-one agency print shops have been reduced to nine consolidated plants. It is the long-range goal of this plan to establish two central printing facilities. The estimated annual volume of these print shops, plus the four shops not scheduled for consolidation, is 136 million impressions at a total cost of \$1.9 million. Alabama is implementing a work order cost system to charge all users for printing services and has centralized the production control and scheduling system to balance the work load between facilities. There has also been a reorganization of supportive services in conjunction with consolidation. Purchasing and storage of printing materials has been centralized, a pickup and delivery service has been organized and liaisons have been charged with offering technical advice and coordinating between the central plants and individual agencies.

In addition, quick copy centers utilizing automated offset systems have been placed in high demand areas. These centers run from ten copies to one thousand copies using standard black ink on white paper. Additional services are collating, stapling and three-hole punching.

Alabama estimates that consolidation will save over \$682,000 annually or 35% of previous costs, with a one time savings of \$385,000. The bulk of this savings will result from improved purchasing and storage procedures, utilization of less expensive floor space and internal printing of work previously done by commercial printers.

Problems, Solutions and Successes

Agency opposition to consolidation was the only major problem in Alabama. Alabama has been able to reduce the average time to complete a printing order from fourteen days to less than six days. There have also been considerable cost savings and increased efficiency due to the introduction of centralized purchasing and organizational practices.

Michigan

The Reproductive Services Section of the Department of Management and Budget provides printing services to all departments and agencies of the executive branch of state government. This section was organized in 1968 as a result of an executive task force report on expenditure management. Currently, nineteen executive departments are served from a central facility located outside of Lansing, Michigan. The central shop operates on a two shift basis with a total of 120 full and part-time employees. All services are provided on a charge-back basis allowing Reproductive Services to operate on a revolving fund. These charges are listed on a regularly updated pricing catalog. The average 7,000 billings per month are handled on an automated basis by the Department's Central Data Center. This system also generates a monthly production/revenue report indicating production and revenue data per unit and per machine.

In addition to the central shop, there are twelve rapid copy centers located within the various departments. These centers are designed to produce quick copy work in the 15 to 500 copy range.

This work is performed on automated offset systems and large photocopying machines. Staffing of the Rapid Copy Centers consists of one to four persons depending upon the amount of auxiliary services provided such as binding and collating. Volume of these centers average 7 million copies per month. There is also a large copy center at the main print shop.

Michigan has a staff of printing coordinators who work directly with agencies in the determining of priorities of jobs submitted. These coordinators are also charged with the task of promoting services and providing planning and technical assistance.

Reproductive services also has the responsibility to review requests for any type of copy reproduction equipment submitted by agencies and to determine whether the equipment should be approved or denied.

Problems, Solutions and Successes

The greatest problem encountered in consolidation was the unwillingness of affected agencies to cooperate. Michigan emphasizes that there have been no problems in meeting customer service demands.

Michigan has eliminated duplication of equipment and has utilized existing resources more effectively. Work generated within Reproductive Services is of a higher quality than was formerly provided. Reproductive Services is located within the same building as Mail Services and Warehouse Services which eliminates frequent handling of printed material. There is a greater

cost awareness on the part of all departments concerning printing. Although there is no definitive cost data available, Michigan has increased productivity greatly while reducing personnel and utilizing less expensive space.

CHAPTER VIII

PROPOSAL FOR CONSOLIDATING AGENCY PRINT SHOPS

The Legislative Audit Council has designed the following proposal outlining its recommendations for consolidating State agency print shops into a State Government Print Shop. This proposal has five sections: Roles and Responsibilities; Features of the State Government Print Shop; Implementation; Estimated Cost Savings; and Agency Objections, Potential Problems and Solutions. These recommendations are based on the Council's analysis of the existing condition of the State's in-house print shops. The organizational structure and the operation of consolidated print shops in other states were examined in order to learn the best techniques and methods for establishing a consolidated print shop. Other states were examined also to identify potential problems so they may be avoided or minimized in South Carolina's consolidation. The Legislative Audit Council estimates that total recurring annual savings from complete implementation of these recommendations will be approximately \$680,326.

Roles and Responsibilities

1. General Assembly

- Transfer through the appropriation process agencies' printing personnel, equipment, and printing supplies. Appropriate operating expenses for the first year's operation. If necessary, legislation should be passed mandating consolidation of agency print shops (see Appendix I).

2. Budget and Control Board

- The Budget and Control Board should consolidate agency print shops.

- Authority and responsibility for planning and establishing the State Government Print Shop should be assigned to the Division of General Services and a professional manager with printing experience hired to run the print shop. The Division of General Services currently has all the mechanisms needed to establish a print shop; i.e., State Printing Office and responsibility for controlling rental space, etc.
- A revolving fund should be established and the State Government Print Shop required to be self-sufficient by the end of the first year's operation.

3. Director, State Government Print Shop

- Design, coordinate, and implement a plan/timetable for consolidating agency print shops.
- Develop policies and procedures for operating the Print Shop.
- Conduct workshops for agency administrators, solicit their cooperation, and assure them of the State Government Print Shop's usefulness to the agency's operation. Acquaint agencies with the Print Shop's procedures for getting printing performed.
- Schedule and prepare printing personnel for the transfer from their agencies and instruct them on the operation of the print shop.
- Operate the State Government Print Shop and the Satellite Quick Copy Centers in the most cost efficient manner.

4. State Agencies

- All State agencies should cooperate fully with the print shop's consolidation to minimize the disruption of agency printing needs and personnel morale.
- Each State agency should establish a person to act as liaison with the Government Print Shop to handle any printing requests and questions and to assist with the smooth transfer of personnel, equipment, and supplies.

Features of the State Government Print Shop

The State Government Print Shop should incorporate the 26 existing print shops into one State Government Print Shop with 6-8 satellite quick copy centers located throughout the Capitol Complex. The printing facility/system should consist of the following elements.

- The State Government Print Shop should use all available equipment to the greatest extent possible. Unnecessary equipment should be traded for usable equipment or disposed of.
- A facility with approximately 25,000 square feet should be sufficient to meet current and future production requirements and to provide ample storage space. This is a reduction of 9,706 square feet from the 34,706 square feet now used. The estimate is based on the size of other states' printing facilities and their production volume. Officials at the Division of General Services have advised

the Council that the best alternative would be to construct a warehouse-type facility on State-owned property. At current construction costs a 25,000 square foot warehouse-type facility could be constructed for approximately \$210,000. Amortized over 20 years the cost per square foot would be only \$0.69 per year. Total annual costs including utilities and maintenance are estimated to be less than \$2.75 per square foot.

- All printing equipment, printing personnel and supplies should be transferred to the State Government Print Shop/Satellite Centers System.
- General Services' State Printing Office, responsible for all commercial printing contracts, should be transferred to the facility for better coordination and control of all printing.
- The Council estimates this system can be operated with approximately 60 employees (see following table).

PROJECTED PERSONNEL COSTS FOR THE GOVERNMENT

PRINT SHOP/SATELLITE CENTERS

(Salary Estimates Are Based On Current Median State Compensation Rates)

<u>Job Description</u>	<u>Number of Positions</u>	<u>Estimated Annual Costs</u>
Printing Services Manager	1	\$ 16,853
Printing Production Manager	4	48,012
Printing Equipment Operator I*	18	142,326
Printing Equipment Operator II	10	91,540
Printing Equipment Operator III	8	86,224
Bindery Worker	8	53,608
Printing Photo Typesetter	2	16,626
Photocopy Specialist	2	14,150
Secretary I	1	7,518
Supply Clerk II	1	6,882
Vehicle Operator I	2	13,060
Accounting Clerk II	3	23,712
	60	\$520,511
Fringe Benefits 15% of Total Salary		78,076
TOTAL PERSONNEL COSTS		<u>\$598,587</u>

*These persons would work in quick copy centers as well as assist in bindery operations.

This personnel estimate is based on the experience of North Carolina's government print shop while using the classified printing personnel currently in South Carolina's State Government.

- An equipment maintenance capability should be developed using existing personnel and maintenance contracts should be eliminated.
- The production area of the State Government Print Shop should be organized into at least three departments with qualified supervisors in each department: (1) Preparation, layout and camera work; (2) Presses; (3) Collating, cutting and binding.

- An inventory control system with bulk buying of supplies should be instituted.
- A cost accounting system for job cost billing should be established along with a computerized cost recovery billing system. Accurate records should be kept on all costs, production output, and equipment and personnel utilization.
- The printing system should include a daily pick-up and delivery system.
- Six to eight satellite quick copy centers should be established. These facilities should use the most cost efficient equipment available to accomplish the tasks. Automated offset systems should be used wherever feasible.

Implementation

The complete consolidation of all 26 agency print shops should be accomplished in less than two years. This timetable consists of two phases: Planning and Consolidation.

Phase I - Planning

The following tasks are not in any priority order and many should be accomplished concurrently whenever possible.

- Project which equipment and personnel will be needed in the State Government Print Shop and satellite centers.
- Plan with the State Personnel Division on the transfer of employees no longer needed in printing to vacant

positions available throughout State Government for which they are qualified.

- Select and prepare suitable warehouse space for the print shop.
- Examine specific printing needs of all agencies. Work with agencies to determine any priorities and scheduling of regular or periodic printing jobs such as monthly newsletters and magazines.
- Estimate the amount of supplies available from State agencies and prepare for ordering additional supplies if needed.
- Develop an inventory control system.
- Develop policies and procedures on billing and the operation of the print shop. Establish a work order cost accounting system and devise a record-keeping system to measure production, equipment and employee productivity.
- Plan the pick-up and delivery schedule and arrange for obtaining the necessary vehicles.
- Determine appropriate locations for the satellite quick copy centers and select the type of equipment to be used in these centers.
- Conduct workshops with agencies to explain the new printing system and begin any training needed for the personnel being shifted to the print shop.

Phase II - Consolidation

- Transfer equipment, personnel and supplies of the agencies print shops to the State Government Print Shop and begin operation.

- Begin operation of satellite quick copy center to serve agencies whose print shops have been consolidated.
- Begin the pick-up and delivery system, the cost accounting system and the billing system.

Estimated Cost Savings

<u>Item</u>	<u>Net Recurring Annual Savings</u>
Reduce the purchase of new equipment.	\$ 70,250
Discontinue maintenance contracts and maintain equipment with existing personnel.	18,000
Use cost-effective automated offset systems in satellite quick copy centers.	51,805
Staff reduction from 88 full-time positions and 10 part-time employees to 60 full-time printing employees.	385,316
Convert 34,706 square feet of office space costing approximately \$135,203 and establish a 25,000 square foot printing facility costing \$2.75/sq. ft. or less.	66,453
Reduce obsolete and damaged stock and production scrap by at least 5% through better supervision and control.	30,000
Standardization of letterhead using one color ink on State Seal bond paper printed by State facilities.	30,502
Bulk purchasing of standard items (envelopes) and the elimination of unnecessary printing.	<u>28,000</u>
TOTAL RECURRING ANNUAL SAVINGS	\$680,326

Agency Objections, Potential Problems and Solutions

All the 26 State agencies reviewed during this audit indicated potential problem areas which could be created by a consolidation of printing facilities. The following is a list of the most frequent problem areas mentioned and possible solutions.

- (1) There may be difficulties in establishing priorities which would result in unacceptable turnaround time.

Solution - The increased capability available in a consolidated shop, plus better organization and utilization of equipment, should improve turnaround time. Quick copy centers will be established to meet agency demands for short run (10-250 copies) fast turnaround items such as reports. Additionally, agencies should give more attention to the preparation and planning of printing. Other states which have consolidated have not encountered this problem.

- (2) A centralized facility would necessitate delays due to transportation distances and be inconvenient.

Solution - The shop location would be in the Capitol area and there would also be a daily pick-up and delivery system. In addition satellite quick copy systems would be set up in high volume areas. Agencies should develop better planning of printing requirements.

- (3) There would be difficulties in maintaining confidentiality, assuring top quality and overall lack of agency control over printing.

Solution - A centralized print shop with responsible management would maintain high standards of confidentiality and quality while also being responsive to agency needs.

- (4) A centralized print shop would require more employees.

Solution - A consolidated shop would require fewer employees than the State currently uses and productivity would increase greatly.

(5) Savings associated with consolidation would be negligible.

Solution - Other states have experienced substantial savings by consolidation, both initially and long term.

These states have also increased control over printing and maximized production levels. The Council estimates that savings would be over \$680,326 per year.

APPENDICES

APPENDIX I
PROPOSED LEGISLATION
A BILL

To establish within the Budget and Control Board the State Government Print Shop and provide for its powers and duties.

Be it enacted by the General Assembly of the State of South Carolina.

SECTION I. There is hereby established within the General Services Division of the Budget and Control Board (the Board) the State Government Print Shop headed by a director. The Board shall develop and implement a comprehensive plan for the consolidation of all agency printing facilities into one State Government Print Shop by July 1, 1979.

The Budget and Control Board shall, through regulations, seek to achieve the following objectives:

- (a) To provide printing support services at the most economical cost to agencies, boards and commissions.
- (b) To achieve maximum utilization of printing equipment and personnel.
- (c) To eliminate unnecessary, duplicative and costly printing.

SECTION II. The Budget and Control Board shall promulgate and enforce State policies, procedures and regulations to achieve the goals in Section I.

SECTION III. All printing equipment, supplies and personnel currently assigned to State agencies, boards and commissions shall be transferred to the State Government Print Shop according to the plan for consolidation as developed by the Budget and Control Board.

SECTION IV. The Budget and Control Board shall establish a charge system for providing printing services to agencies, boards and commissions. Charges accrued will be paid on a regular basis.

SECTION V. The Budget and Control Board shall develop a uniform cost accounting and reporting system to ascertain the cost of operating State printing equipment and to gather information needed for effective management of the State Government Print Shop.

This act shall take effect upon approval of the Governor.

APPENDIX II

PRINTING EQUIPMENT INVENTORY SUMMARY

AGENCIES

<u>Type of Equipment</u>	<u># of Machines</u>	<u>Total Investment</u>
<u>Presses</u>		
Addressograph Multilith 1250	19	\$ 84,482
Addressograph Multilith 1275	2	18,186
Addressograph Multilith 1320	1	4,120
Addressograph Multilith 1850	3	15,614
Addressograph Multilith 2650	1	8,478
A. B. Dick 310	1	2,935
A. B. Dick 321	1	2,400
A. B. Dick 326	1	1,765
A. B. Dick 350	16	66,069
A. B. Dick 360	8	45,243
A. B. Dick 369	1	9,930
A. B. Dick 385	1	14,245
Davidson 500	1	1,545
Davidson 600	1	1,300
Davidson 700	2	13,406
Heidelberg Kord	4	72,802
Heidelberg Platen Press	1	7,576
ATF Chief	2	12,418
L&W Duplicator	1	7,112
A. B. Dick 369 Copy System	5	50,794
A&M 2850 Copy System	<u>1</u>	<u>17,000</u>
Total	73	\$457,420
<u>Addressographs</u>	15	19,736
<u>Cameras and Optical Equipment</u>		
Cameras	9	21,154
Conversion units/film processors, exposures units	9	17,552
Darkroom sinks	7	4,642
Tables/drawing boards	19	7,380
Other	4	1,663
Total	<u>48</u>	<u>\$52,391</u>
<u>Platemaking Equipment</u>	42	\$81,022
<u>Binding Equipment</u>		
Outters	28	91,738
Binders	26	24,000
Stitchers and Staplers	19	11,891
Folders	27	35,884
Drills & Punches	24	22,734
Collators	31	149,596
Paper Joggers	23	2,828
Perforators	4	6,338
Total	<u>182</u>	<u>\$345,009</u>

APPENDIX II (CONTINUED)

<u>Type of Equipment</u>	<u># of Machines</u>	<u>Total Investment</u>
<u>Miscellaneous</u>		
Headliners, composer, waxer, etc.	<u>19</u>	<u>\$ 26,737</u>
Total	379	\$982, 315

COLLEGES AND UNIVERSITIES

<u>Type of Equipment</u>	<u># of Machines</u>	<u>Total Investment</u>
<u>Presses</u>		
Addressograph Multilith 1250	7	\$ 30,842
Addressograph Multilith 1850	1	1,389
Addressograph Multilith 2650	1	7,731
A.B. Dick 350	6	20,758
A.B. Dick 360	6	29,352
Davidson 70	1	11,379
Davidson 500	3	13,806
Davidson 650	1	7,117
Davidson 700	2	11,838
Heidelberg Kord	2	51,816
Heidelberg GTO	1	24,233
Zenith 25	1	18,950
Commander 24	1	16,000
Little Giant #6	1	4,187
C&P Open Press	2	518
Itek #15	<u>1</u>	<u>3,972</u>
TOTAL	37	\$253,888

<u>Addressographs</u>	2	\$ 12,800
-----------------------	---	-----------

Cameras and Optical Equipment

Cameras	6	\$ 18,031
Conversion units/film processors, exposure units	9	3,771
Darkroom sinks	9	9,820
Tables/drawing boards	15	3,505
Other	<u>5</u>	<u>3,037</u>
TOTAL	44	\$ 38,164

<u>Composers, Phototypesetters</u>	24	\$137,414
------------------------------------	----	-----------

APPENDIX II (CONTINUED)

<u>Type of Equipment</u>	<u># of Machines</u>	<u>Total Investment</u>
<u>Platemaking Equipment</u>	19	\$ 44,442
<u>Binding Equipment</u>		
Cutters	15	\$ 32,983
Binders	15	15,638
Stitchers and Staplers	27	22,908
Folders	17	45,615
Drills and Punches	15	\$ 17,395
Collators	19	62,813
Paper Joggers	13	3,588
Perforators	<u>4</u>	<u>1,655</u>
TOTAL	125	\$202,595
<u>Miscellaneous</u>	<u>13</u>	<u>\$ 18,440</u>
GRAND TOTAL	264	\$707,743

APPENDIX III
METHODOLOGY FOR DETERMINING UTILIZATION OF OFFSET
PRESSES IN S. C. STATE GOVERNMENT

Introduction

South Carolina currently does not have standards for use of the State's offset printing presses. It was therefore necessary to develop a method for establishing standards for evaluating the efficiency and effectiveness of the current operation of the State's offset presses.

The method consisted of developing a model which defines the annual maximum possible operational level for offset presses. This model was then applied to the actual annual use level of offset presses in South Carolina State Government. A conservative minimum standard for use levels was then developed by allowing 3½ hours out of each 7½ hour working day for maintenance and the setting-up of an offset press to run a job.

The first section below describes the calculations used in establishing the optimum model for assessing the use of offset presses. The second section describes the model's application to the actual use level in South Carolina. The third section explains how the minimum use standard was defined for the State and how this standard was applied in each State agency that operates an offset press.

Defining A Model for Analysis of the Utilization Level of Offset Presses

1. Model: $U = \frac{H}{P}$
2. U = Utilization - the total number of hours a press operates annually expressed as a percent of the total number of working hours the press is available annually.

3. Derivation of H:

- a. The number of hours a press is available for operation annually is the same as the number of hours an operator would be on the job.

37½ hours straight time per week x 52 weeks =	<u>Hours</u> 1,956
Less: 15 days annual leave =	112.5
15 days sick leave =	112.5
11 holidays =	82.5 <u>(307.5)</u>

Total number hours available annually, one press = 1,642.5
(219 days)

- b. H = Number of hours available annually all State presses

$$H = 69 \text{ State presses} \times 1,642.5 \text{ hours per press} = 113,332.5 \text{ hours}$$

4. Derivation of P:

- a. A conservative press operation speed of 5,000 impressions per hour (iph) was used in estimating the productivity of a press. Most offset presses have an operating speed ranging from 4500 iph to 9000 iph.

- b. P = Total number of hours all State presses were operated in one year.

$$P = \frac{\text{Number impressions made annually}}{5000 \text{ iph}} = \frac{119,589,286}{5000} = 23,917.4 \text{ production hrs.}$$

Application of the Model to South Carolina

1. $U = \frac{H}{P}$

2. $U = \frac{23,917.4}{113,322.5} = 21.1\%$

3. $U = 21.1\%$

4. Conclusion: In FY 77-78, of the 113,332.5 working hours available for operation of the State's 69 offset printing presses, they

were operated only 23,917.4 hours, or 21.1% of the available work time.

Developing A Minimum Utilization Standard

The model was used to develop a minimum use standard for evaluating efficiency and effectiveness of the operation of State printing presses.

1. The goal is to have $U = 100\%$. This means that any given press would be in operation 100% of the time estimated to be available for operation. This involves a judgment decision of what constitutes a reasonable expectation of a printing press' operating time.
2. The State work day is $7\frac{1}{2}$ hours. Four hours was determined to be the expected daily operating average for a single press. $3\frac{1}{2}$ hours of each day, on the average, was allowed for job set-up time, clean-up time, routine maintenance, operator's lunch period, breaks and miscellaneous down time.

3. Number of productive hours available annually, one press = $\frac{\text{Hours}}{1,642.5}$
Less: $3\frac{1}{2}$ hours x 219 work days = (766.5)

Minimum number of hours a press should operate annually = 876

H = Number of working hours all presses should operate annually

H = 69 presses x 876 = 60,444 hours

4. P = Total number of hours all presses are operated annually

$P = \frac{119,589,286 \text{ impressions}}{5000 \text{ iph}} = 23,917.4 \text{ hours}$

5. U = Utilization, is the total number of hours a press(es) operates annually expressed as a percentage of the total number of hours available annually. If a press operates an average of 4 hours each work day, $U = 100\%$.

$$U = \frac{H}{P} = \frac{23,917.4}{60,444} = 39.5\%$$

6. The formula $U = \frac{H}{P}$ also was used to determine actual utilization of each agency print shop shown in Table II, page 15. The standard $U = 100\%$ is when all agency presses average operating 4 hours each work day.

APPENDIX IV
METHODOLOGY FOR COST COMPARISON OF THE XEROX 9200 SYSTEM
WITH AUTOMATED OFFSET SYSTEMS

Cost comparisons were made between the Xerox 9200 System and two comparable automated offset systems, the A. B. Dick 1600 and the Addressograph Multigraph 4250 MR. Actual monthly production data for seven State agencies with eight 9200 Systems was analyzed and total costs were compared with the automated offset systems. The analysis did not include the production data resulting when the 9200 System was used solely as a "copier" (less than 6 consecutive copies per original). The following pricing plans were used in the computation of the monthly costs for each agency. These pricing plans were obtained from the respective companies.

Xerox 9200 System

Duplicating Pricing Plan A-CP, Monthly Costs

\$.16	per original
\$.0048	per copy: 1 - 100,000 copies
\$.0039	per copy: 100,000 + copies
\$1,500.00	minimum monthly charge for copies
\$.001	per copy: supply costs excluding paper

A. B. Dick 1600 System w/100 Bin Collator

60 Month Lease Plan with Full Service - Monthly Costs

\$1,157.64	per month
\$.0684	per master (original)
\$.00065	per copy - supply costs excluding paper

APPENDIX IV (CONTINUED)

A & M 4250 MR w/104 Bin Collator

Volume Incentive Plan - Monthly Costs

\$.08	per master: 1 - 5,000 master (original)
No Charge	5,000 + masters
\$.01	per copy: 1 - 110,000 copies
\$.004	per copy: 110,000 - 185,000 copies
No Charge	185,000 + copies
\$1,100.00	minimum monthly charge (for the 1st 110,000 copies)
No Charge	supply costs excluding paper

APPENDIX V

ANNOTATED BIBLIOGRAPHY

NATIONAL PUBLICATIONS

Congressional Joint Committee on Printing. Government Printing and Binding Regulations. Washington, D. C., 1977. A detailed booklet listing federal regulations concerning printing and printed material including a guide to authorized federal printing plants.

National Association of Printers and Lithographers. Cost Study On Sheetfed Offset Presses, New York City, New York. 1975. A list of suggested hourly cost rates for selected printing presses including methodology.

National Association of Printers and Lithographers. Cost Study On Lithographic Preparatory Operations, New York City, New York. 1977. A list of suggested hourly cost rates and equipment profiles of selected cameras and platemakers.

National Association of Printers and Lithographers. Cost Study On Bindery Operations, New York City, New York. 1977. A computation of budgeted hourly cost rates for selected binding and cutting equipment.

Wilds, Thomas. "Copier Management Techniques" The Office. April, 1977. An indepth analysis of the virtues of centralized copier management including a user's guide to copier equipment.

INFORMATION FROM OTHER STATES

Alabama. Master Plan for State Printing. Department of Finance, 1977. A detailed study outlining the reorganization and consolidation of state printing facilities including a detailed examination of other states.

California. Guide Book. Office of State Printing, 1976. A descriptive booklet outlining state laws, operations, cost accounting procedures and policies regarding state printing.

Florida. S.O.F.A.R.S. Cost Records. Department of General Services. A detailed explanation of the cost accounting and recording system used by state reproduction facilities.

Iowa. State Printing Administrative Rules. Printing Division of The Department of General Services. A short descriptive compilation of rules which apply to state printing both for agencies and contractors

Kansas. A Proposed Printing Program For The State Of Kansas. State Printing Advisory Committee. 1976. A planning and programming document outlining the scope and program of state printing including an examination of other states.

APPENDIX V (CONTINUED)

Michigan. Report on Printing and Duplicating. Task Force on Expenditure Management, 1963. The results of an indepth study of in-house printing which recommends stricter control of state printing.

Nevada. Laws Relating to State Printing and Publications. Department of State Printing, 1977. This booklet provides a detailed summary of state statutes regarding state printing.

New York. A Report on New York State In-House Printing. Division of The Budget, 1977. A management survey of the State Central Reproduction Unit with recommendations and commented upon by The State Chapter of the Printing Industries Association.

North Carolina. Consolidated Printing Evaluation. Office of Administrative Analysis, 1975. A cost comparison of agency print shops including proposed recommendations and estimated savings.

South Dakota. Central Duplicating. Central Duplicating Services. A short summary describing the services offered at the Central Services Duplicating Plant.

Tennessee. Report of the Higher Education Publications Committee. Higher Education Commission, 1977. A report reviewing efforts by state institutions of higher learning to control and evaluate publications with emphasis on cost reduction.

Virginia. State Agency Printing and Duplicating in the Capital District. Department of Purchases and Supply, 1977. This white paper identifies the problems in state printing operations and recommends a policy of consolidation.

Washington. Performance Audit of the State Printing and Duplicating Committee. Legislative Budget Committee, 1976. An indepth audit of the State Printing and Duplicating Committee and their performance in the areas of planning, operations and management including recommendations.

APPENDIX VI
STATE OF SOUTH CAROLINA

DIVISION OF GENERAL SERVICES

BUDGET AND CONTROL BOARD

300 GERVAIS STREET, COLUMBIA, S. C. 29201

November 3, 1978

FURMAN E. MCEACHERN, JR.
DIVISION DIRECTOR
803-738-2226



Mr. George L. Schroeder
Executive Director
Legislative Audit Council
Suite 500, Bankers Trust Tower
Columbia, South Carolina 29201

Dear Mr. Schroeder:

This office has reviewed the Legislative Audit Council Report concerning State printing, photocopying and related activities and concurs with the findings of the Council.

We agree with the Council Report that the highest levels of increased efficiency and coordination as well as better management would result from consolidation of agency print shops. This would mean the transfer of all printing equipment, supplies, and personnel currently assigned to State agencies, boards, and commissions, except institutions of higher education, to a State Government Print Shop facility. In addition, the creation of quick copy centers (in the Columbia area) utilizing cost effective duplicating systems would also result in better management and cost savings.

We further support the Council Report recommendations relative to copy machines, contractual printing, budget codes, and other matters relating to the overall program of printing, copying, and document reproduction.

I am confident that the implementation of the report recommendations can significantly reduce printing and other copying costs to the State. I support and recommend acceptance of the Council Report.

Very truly yours,

F. E. McEachern, Jr.
Division Director

FEMjr/PHI/hc